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Donald R. Cressey

The Role of the Research Administrator
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Book Reviews • Abstracts

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Editor's Commentary

IT seems worth while to reassert the *Quarterly's* objective of drawing together the threads of research and theory upon which generalizations about administration rest. The need for empirical research remains great, and the number of *Quarterly* articles based upon such research has been substantially increased during the past year. But generalization is the main object of research; therefore, this space will be used from time to time to point out "recurrent relationships" in administration.

In the current issue one or two continuities seem noteworthy. The idea of role conflict keeps reappearing. Both Cressey's article on prison administration and Kaplan's on research administration document this struggle and the attending dysfunctions. Conflicting demands upon individuals due to diverse organizational, professional, and personal values seem characteristic of most organizations, regardless of their substantive program. All this suggests that the dedicated organization man is perhaps rarer than we have assumed.

However, Etzioni's article shows us again that care must be taken in generalizing about administration, since authority and control must be adapted to the demands of different kinds of organizations. This kind of delineation and refinement is the area in which the next big advances in organizational theory may be made. It is time to ask: Under what specific conditions do certain forms of administrative practice and behavior occur?

Ditz's article suggests the relationship between cultural factors and organizational effectiveness. He shows that conflicts between political and functional values in Communist industries aggravate the usual problems of industrial management. Here again, role conflict appears as the plant manager is torn between the rational claims of his technical role and the political authority of party organization and workers' committees. As often happens, the conflict is resolved by informal measures, which over time become institutionalized.

ROBERT V. PRESTHUS

Donald R. Cressey

Contradictory Directives in Complex Organizations: The Case of the Prison

In a custodially oriented prison, the author found that guards were to enforce discipline and at the same time to minimize friction among inmates and between inmates and staff. In a treatment-oriented prison, guards were expected to contribute to inmate rehabilitation by being nondirective and showing concern for inmate personality problems. But they were also expected to maintain order. These conflicting directives, which characterize organizations of many kinds, made it necessary for administrators of both institutions to use multiple criteria in judging the performance of guards. However, even theoretically, criteria which would seem to define desirable over-all performance, to be rewarded and encouraged, could not be specified.[1]

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AMERICAN prisons have changed from relatively simple institutions with punishment and custody as objectives to more complex organizations with difficult and contradictory goals. Such change has required alteration in the kinds of direction and supervision

[1]This paper, read at the annual meetings of the American Sociological Society in August 1958, is based on field research conducted between July 1955 and September 1956, when the author was attached to the Center for Education and Research in Corrections, University of Chicago. The results of this research project are now being prepared for early publication and are being integrated with the results of

given employees. In early prisons the organizational goal was fairly clear and the role of the employee was correspondingly precise. A bureaucratic hierarchy of ranks operating through an established set of punishment-enforced rules ensured that discipline was maintained among inmates and among employees. Guards, as the workers in the system, were expected to handle inmates without favoritism and without giving special consideration to the problems of individual prisoners. Supervisors in turn were expected to treat guards alike and to see that they enforced the disciplinary rules for inmates. Thus a set of rather precise rules for inmate behavior had as its corollary a rather precise set of rules for the behavior of employees. In this system administrative judgment of the quality of a guard's work was based on a single criterion, the degree to which he conformed to the rules for his behavior. A guard who followed the rules was evaluated most highly.

Because of changes in prison goals, guards in modern prisons are expected to do more than stand guard. Even in the type of institution which continues to emphasize custody, called here the "custodially oriented prison," humanitarian concern for the welfare of inmates and external demands that inmate labor be utilized have effectively deprived the personnel of many means of control. The goal of such institutions has shifted from mere custody to humanitarian custody or productive custody. Thus inmates cannot be kept docile by severe punishments or severe deprivations; neither can a large number be kept in solitary confinement. Custodial control is to be maintained among prisoners who must be handled humanely and permitted to work together and in other ways consort with each other. Guards then are to maintain discipline and follow rules for doing so, but they also are to ensure that antagonism, hostility, and unco-operativeness are not aroused in inmate populations even though these have been granted a degree of freedom which could be used to initiate riot or rebellion.

In the other principal type of modern prison, called here the "treatment-oriented prison," the role of the guard has been even more sharply bifurcated. Here guards must preserve some measure

other research conducted at the Center during the years 1953–1956. The author is greatly indebted to Lloyd E. Ohlin, director of the Center, to Donnell M. Pappenfort and Herman Piven, who were research assistants, and to the Russell Sage Foundation, which financed the Center.

of order and discipline since this is essential to a prison's custodial goal, but they must also contribute to accomplishment of an institutional therapy or individualized-treatment goal. Generally speaking, the latter goal can be achieved only if guards are instructed to relax in custodial and disciplinary matters, to take the personality needs of each inmate into account, and to individualize the handling of inmates accordingly.[2] These practices are viewed either as constituting treatment itself or as means of assisting (or at least not hindering) the treatment practices of professional personnel such as social workers and psychologists.

The shift in prison goals has therefore had as one of its effects the introduction of conflicting directives for employees in both major types of institution. In the course of a year spent partly in a custodially oriented prison and partly in a treatment-oriented prison, we were able to observe these conflicting directives by studying the criteria used to evaluate the performance of guards in both systems. Generally, guards in the custodially oriented prison were expected to enforce rules and maintain discipline while at the same time minimizing friction among inmates or between inmates and staff. In the treatment-oriented institution guards were to contribute to inmate rehabilitation by relaxing, being nondirective, and showing concern for inmate personality problems, but they were also expected to maintain order, keep inmates productively employed, administer justice, and see that escapes did not occur. These conflicting directives made it necessary to use multiple criteria in evaluating guard performance and made the guard's job an extraordinarily difficult one. One consequence in the custodially oriented prison was low employee morale and the highest employee turnover rate of any state institution, and a consequence in the treatment-oriented prison was high morale and the lowest institutional turnover rate.

MULTIPLE CRITERIA

The use of multiple criteria in judging worker performance always makes it necessary for the employee to make judgments

[2]See Donald R. Cressey, "Social Organization of Correctional Institutions," paper read at the annual meetings of the American Sociological Society, 1956; and Rehabilitation and Reality, II, Organization and Freedom, *California Youth Authority Quarterly*, 10 (1957), 40–47.

about committing himself to the task or tasks which have been set for him. As Ridgway has said, "Without a single over-all composite measure of performance, the individual is forced to rely on his judgment as to whether increased effort on one criterion improves over-all performance, or whether there may be reduction on some other criterion which will outweigh the increase in the first."[3] The use of multiple criteria is therefore either implicitly or explicitly based on the assumption that the individual worker will commit his "efforts, attention, and resources in greater measure to those activities which promise to contribute the greatest improvement to over-all performance."[4] For maximum organizational efficiency theoretical criteria must be specified so that additional effort in one area will yield desirable results in over-all performance.

There are two principal systems for specifying theoretical conditions in which conformity by a worker will be evaluated as desirable over-all performance, to be rewarded and encouraged. One is to standardize procedures and work tasks in explicit sets of rules. In this kind of system individuals who commit themselves explicitly to form and procedure are rewarded even if such commitment means a decline in achievement of success measured by some other criterion, such as quality of the end product. Even if multiple criteria are used in judging performance, a worker employed under these conditions will be able to discover that conforming to standardized procedures will be most highly rewarded. He will be able to discern, for example, that commitment to routinized forms is highly desirable even if one stated criterion for measuring his worth is an acceptable end product.

The other system is to evaluate workers on the basis of clearly specified results which they are expected to accomplish. This system encourages ingenuity and, at the same time, "assures the standardization necessary for bureaucratic operation."[5] The worker here commits himself to creation of the desired, specified, standard, end product, even if such commitment means deviation from supervisors' conceptions of how the end product is to be produced.

[3]V. F. Ridgway, Dysfunctional Consequences of Performance Measurements, *Administrative Science Quarterly*, 1 (1956), 240–247.

[4]*Ibid.*

[5]Peter M. Blau, *Bureaucracy in Modern Society* (New York, 1956), p. 66.

Workers will somehow learn that over-all performance is judged on the basis of end product, even if one stated criterion for measuring achievement is conformity to standardized rules of procedure.

A high rating on over-all performance depends, then, upon the worker's ability to discover these two systems and, when multiple criteria are used in evaluations, to exercise discretion regarding the tasks to which energy will be committed. However, one of the most significant things about the two prisons studied was that neither provided even theoretical criteria which guards could use in order to gain over-all ratings of excellence. As indicated below, in both institutions multiple and contradictory criteria were used in such a way that it was impossible for guards to discern whether it would be profitable to commit themselves to following rules, to accomplishing a desirable end product, or to some combination of these two.

In the custodially oriented prison this situation was a consequence of administrative inability to specify the appropriate means for achieving the desired end result—minimum disorderliness among inmates—and at the same time stressing that dedication to these means would bring the greatest rewards. In the treatment-oriented prison it was a consequence of administrative inability either to measure the effect of an employee's activity on production of the end product specified as desirable—reformation of inmates—or to specify appropriate means for achieving this goal. Stated in another way, administrators in the custodially oriented prison stressed the importance of means, not end product, yet they were unable to specify the desirable means; whereas in the treatment-oriented prison administrators emphasized that competence was to be judged on the basis of end results, but in making evaluations of employees they were unable to use as a criterion either end product or degree of commitment to routines. In both organizations use of multiple criteria under such conditions of open discretion stemmed from the administrative view of the nature of inmates.

THE CUSTODIALLY ORIENTED PRISON

In the custodially oriented prison inmates were officially viewed as dangerous, scheming, conniving men in need of close surveil-

lance. Accordingly one important administrative task was minimization, to the fullest extent possible under the law and the humanitarian concern of external groups interested in the institution's operation, of inmate freedom. Rules that set the limits of inmate freedom precisely were therefore specified, and one major set of criteria used for evaluating guard performance was the extent to which the inmate rules were enforced. The chief custodial administrator had the following to say in a speech to new guards:

> You are here to enforce the rules of the institution. Every rule. You must enforce every rule. If we thought that one of these rules was not needed, we would throw it out. We go over them every now and then and decide whether they should be changed. We did that about five years ago—went over with all of the departments the rules that applied to them. So don't fail to enforce a rule, even if you think it is nonsense. It is there for a reason. Don't blow hot and cold; enforce the same rule in the same way every day. Come in and see me or see a lieutenant if you think the rule doesn't make sense. We will take it up. But if it is there, enforce it.

This general rule for guard behavior was a corollary of the general rule to inmates that all rules were to be obeyed. Similarly, slightly less general rules for all employees, such as, "escapes shall be prevented at all costs," were corollaries of less general rules for inmates: "No inmate shall escape." Correlated also were the specific lists of rules pertaining to each guard's post. A shop guard might be instructed that no inmate was to be permitted to smoke in the shop, while inmates were instructed that smoking was not permitted. Then, if an inmate escaped or smoked, there had been a rule violation by both an inmate and an employee. A bureaucratic chain of command designed to enforce the personnel rules was well developed and had as its ultimate objective the enforcement of rules for inmate conduct. In essence guards were expected to guard, and supervisors were expected to see that this task was accomplished.

Because of this emphasis on rules for enforcing rules it was difficult to find a guard activity that was not regulated from above. We could find no system of rules or rule enforcement for guards which was equivalent to the "mock bureaucracy" or the "repre-

sentative bureaucracy" described by Gouldner for a factory.[6] Guards' duties were defined in such a way that only rarely could an employee do something which was not either in accordance with, or a violation of, rules. Such activities as going to the toilet, whistling, laughing, talking, and smoking were among the actions about which regulation from above was sought, for guards as well as inmates. Generally speaking, guards were expected, while in the institution, to place themselves completely at the disposal of the administrators, to be used as the latter saw fit.[7]

A second important administrative task in this institution was minimization of the number of disgruntled inmates. When complete physical incapacitation of the governed is impossible, and when government is by a small minority, consent of the majority to be governed must somehow be obtained. Rules must be enforced, but enforcement must not be so rigid and arbitrary that the governed are stimulated to riot or rebel. In contemporary conditions of imprisonment, where inmates do not consent to be governed and cannot be physically segregated, numerous near-equivalents of physical incapacitation have been devised. For example, incentives and rewards, such as parole, "good time" allowances, and trustee status, are granted principally to inmates who have remained isolated from others. In this way psychological solitary confinement has been substituted for the physical solitary confinement characterizing early prisons.[8] In addition, caution must be exercised in what is called the enforcement of rules.

[6]In the first type of bureaucracy the rule is neither enforced by management nor obeyed by the workers, and in the second there is mutual *acceptance* of the rule, so that deviation from it can be viewed as due to ignorance or carelessness rather than as due to willful resistance. Alvin W. Gouldner, *Patterns of Industrial Bureaucracy* (Glencoe, Ill., 1954), pp. 181–206, 215–219.

[7]Herbert A. Simon, "Inducements and Incentives in Bureaucracy," in Robert K. Merton, Aliso P. Gray, Barbara Hockey, and Hanan C. Selvin, *Reader in Bureaucracy* (Glencoe, Ill., 1952), p. 331. In the custodially oriented institution framed copies of a state statute providing that the warden may conscript the aid of any citizen to assist in maintaining order in the prison were posted in conspicuous places. The lesson for guards was intended to be: A warden who has authority to draft men on the street, without regard for their personal preferences or opinions, in order to maintain order certainly can utilize the lives of *employees* in any manner he sees fit. The chief custodian made this point explicit in his talks to new guards.

[8]This practice has developed as a response to denial of administrative power to confine most inmates in solitary and, positively, to insistence that inmate labor be used efficiently, at least in the maintenance of prisons. See Richard A. Cloward,

Although the set of rules for inmates serves as advance notice that nonconformists will be punished,[9] rules and punishments must be administered in such a way that both the conditions of imprisonment and the punishments are accepted by a maximum number of inmates. Such acceptance will minimize the probability of revolt, riot, and even individual rebellion. Positively this means that the rules must be enforced in a manner which does not make inmates disgruntled; guards must use discretion and common sense in enforcing rules. An administrator had the following to say about the undesirable action of an employee whose duty it was to enforce the rule that inmates shall not, among other things, write to criminals or criticize the administration in their letters:

> He was letting a few things through so we talked to him about it, and right away he started just sending letters back with a little slip saying "rejected" or "rewrite." And when that happens, of course, everybody gets upset and you have all these disgruntled inmates on your hands.

In the custodially oriented prison the conflicting directives to guards and the conflicting criteria for judging their competence were directly related to these two principal administrative tasks. Guards were to secure strict conformity to institutional rules and, at the same time, were to exercise common sense in order to maintain conditions in which a minimum number of inmates would become disgruntled and potentially rebellious. In the words of one administrator, "The good guard is the one who gets the best discipline with the least friction." Although both were directives to commit one's energy to form and procedure, it is significant that precise rules for minimizing the amount of inmate disgruntledness were not given the guards. The result was that guards could rely neither on "following the rules for enforcing inmate rules" nor on "using common sense in enforcing the rules" in order to gain high over-all ratings. This was observed in two principal contexts.

"Social Control in the Prison," a paper read at a meeting of the Social Science Research Council Conference Group on Research in Correctional Organization, February 1956; and Donald R. Cressey and Witold Krassowski, Inmate Organization and Anomie in American Prisons and Soviet Labor Camps, *Social Problems*, 5 (1957), 217–230.

[9]Gouldner has specified this as an important condition necessary to obtaining consent. *Op. cit.*, pp. 168–171.

First, the administrative view of inmates as dangerous and conniving put emphasis upon detection and prevention of *potential* as well as actual inmate rule violation. The general order to enforce inmate rules was complicated by its implication that guard action was to be ex post facto. A guard who took the order literally could only watch and wait, in much the way traffic policemen sometimes hide behind billboards waiting for violations. Since such action in the prison would grant inmates an opportunity to gamble on the advantages of nonconformity against the disadvantages of possible detection and punishment, enforcing inmate rules had to be interpreted to mean that guards were to be alert to *potential* violations. They could not be instructed that absence of trouble on individual posts was the desired end product, to be achieved by individually initiated means, including the exercise of common sense, because absence of trouble on a post could mean that a guard had entered into a conspiracy with inmates and had created a condition potentially dangerous to institutional security.[10] A supervisory system for observing and testing the alertness of guards—for testing the degree of their commitment to form and procedure—was therefore necessary. But the presence of alertness tests always assumes that rules are completely explicational and that discretion or common-sense procedures are not expected. Since this was not the case in the prison, a guard's use of common sense to prevent inmates from becoming disgruntled became a potential source of a demerit, not of a reward. Stated in another way, a guard's alertness to expectations regarding his duty to keep inmates from becoming disgruntled could not be tested, for explicit rules defining this duty could not be formulated; and deviating (in an attempt to keep inmates from becoming disgruntled) from the specified rules could be taken as a sign of nonalertness, not of competence.

It became impossible then for guards to find a principle for committing their energy to following rules, to using common sense and discretion, or to an acceptable combination of the two. If a

[10]This is one of the principal devices guards in some prisons use to control inmates and to get along with their superior officers. See Lloyd W. McCorkle and Richard Korn, Resocialization within Walls, *Annals of the American Academy of Political and Social Science*, 293 (1954), 90–98; and Gresham M. Sykes, Corruption of Authority and Rehabilitation, *Social Forces*, 34 (1956), 257–262.

guard enforced the rules by formally reporting all inmate misconduct or potential misconduct to a central disciplinary court, the relatively high frequency of such reports when he was on duty was likely to be taken as evidence of poor performance, with a demerit as its consequence. Conversely if he were detected exercising discretion and overlooking violations or potential violations of minor rules he also might receive a demerit, in this case for not being alert to potential danger. The ensuing problem for guards is illustrated in the following three statements:

I think the big problem in here is the problem of counselors. You hear in the schoolroom [in-service training] up there that we are supposed to be counselors to these men and everybody is talking about how you have to be a counselor, you have to help them and such things as that. But if you get caught talking to an inmate, it's murder. They see you talking to an inmate and they think that you're trying to help him get over the wall or smuggle in some whiskey or something like that. Now, that just isn't right. I think that we ought to be counselors. I agree with that. But I think that in order to be counselors we've got to be trusted, and they just don't trust the officers. They don't want them to do any thinking themselves.

They always think there is something wrong with what you do. Like talking to inmates. I talk to them all the time. I have to talk to them. How in hell are you going to get anything done if you don't talk to them? I find out about them, whether I can trust them and things like that by talking to them. Then the lieutenant comes in and you aren't supposed to be talking to them. To hell with them. I just keep on talking to them. Of course, on my job it's a little different, because I have only a small bunch of inmates. But how are you going to get to know them if you don't talk to them?

A probationary guard was assigned to one of the shops for a day's tour of duty so he could learn the rules of the shop. The old guard to whom he was assigned gave him the following lesson, among others.

Now, especially when you are on probation, what you are going to hear is that you shouldn't talk to these inmates. That's the rule. But you've got to talk to them. You and I know that you can't get along with them unless you talk to them. If they come up to you with something, well, you've got to talk to them about it. You can't just scare them away. But you have to watch out to see that you do it wisely and see that the lieutenant doesn't catch you at it. Just like in here I

have to be over there around the corner to see what in hell the inmates are doing, and at the same time if the lieutenant comes in and I'm over there in the corner talking with them or something, to see that they don't get in a fight or something like that, then I'm on the carpet for not being alert and saluting the lieutenant or the deputy warden when they come through.

Second, the two facets of the guard's role logically called for two very different administrative reactions to guard deviation, but guards could discern only one response. As is illustrated in criminal law theory and procedures, in our culture the reaction to deviation viewed as *deliberate* is one of punishment and close surveillance, whereas the reaction to deviation perceived as *unintentional*—as due to ignorance or inability to conform—is education and therapy.[11] It follows that when the guard's role is primarily a simple one of following orders, writing conduct reports, and participating in a show of force, deviation will be perceived as *deliberate unco-operativeness,* with punishment as a consequence. But when the role is viewed primarily as a more complex one of using finesse, subtleties, discretion, and other individualized measures to keep inmates contented, deviation must be assumed to be the *unintentional* consequence of ignorance, with education as a consequence. In the custodially oriented prison the bifurcated role of the guard obscured the distinction between these two responses. Significantly the organizational structure designed to repress inmates made it impossible for administrators and supervisors to respond in clearly nonpunitive terms to guard deviation resulting from expectations that they would properly use discretion and common sense.

In order to gain employment in the custodially oriented prison guards had to (1) pass a written examination and be certified by the state personnel department; (2) survive interviews with the warden, an administrative assistant, and the deputy warden; (3) survive a check into their personal lives by parole agents in their home communities, and (4) pass a six-month probationary period during which they were under very close scrutiny by all the supervisory personnel. Such a formidable screening device should eliminate

[11]Gouldner has observed this principle in operation in the relationships between management and workers in a factory. *Op. cit.,* pp. 159–161, 176–180, 215–219, 232–234.

the unfit and incompetent—men who are *unable* to perform the duties of a guard as these duties are perceived by supervisors—and it was presumed to do so. No complaints were voiced to the investigator about the system of selection or about the quality of the candidates from among whom the selections were made.

Opinions were voiced, however, about the civil service system that conferred job tenure on guards as soon as they passed their probationary period. Despite the fact that all custodial administrators had begun their employment as guards and had thus once been on probation themselves, they often complained that once a guard had passed probation he became negligent in his duties, "because he knows we can't fire him." The first words spoken by a captain to the investigator during his first day at the institution included something like, "I have more trouble with the guards around here than I have with the inmates." "Trouble" with guards was found to include perception of their conduct as *deliberate* refusal to enforce inmate rules and to keep order. If screening procedures keep out the obviously unfit, then not performing one's duties must be viewed as due to deliberate laziness, deliberate indifference, or deliberate insubordination.

But guards were also expected to use discretion and common sense, and their deviation from this administrative expectation was viewed as stemming from *inability* to meet expectations rather than from deliberate unco-operativeness. Consistently *education* rather than punishment was the device used for correcting the deviation. Supervisors and administrators attempted to give this guidance both in on-the-job consultations and in more general in-service training sessions. However, the judicial system which necessarily had to be used for handling those deviations that were perceived as deliberate made it difficult for the guards to view the supervisory consultations as anything but devices for administering demerits, and they viewed the education received in in-service training sessions as unrelated to everyday institutional practices.

The rigid system for screening guards, with the consequent assumption that most guard deviation was deliberate, made it necessary to handle employee deviations from the rules (both those coinciding with rules for inmates and those for co-ordinating employee behavior—such as rules specifying the type of dress and

the time at which one should arrive for work) by a procedure similar to that used in "strict liability" cases in criminal law.[12] In such criminal law cases the traditional differential in response to intentional and unintentional deviations is abandoned, for criminal intent is *assumed* to be present. Offenders are held liable for their conduct regardless of their intentions. For example, in statutory rape (intercourse with a female younger than the age of consent) a man's honest belief that the girl was above the age of consent does not preclude a finding of guilty. Most traffic violations are handled under the same principle. Generally speaking, the strict liability procedure is used in criminal law for determining guilt in those types of cases in which *mens rea* would be difficult to prove and in which the prohibited behavior is administratively undesirable but not highly reprehensible.

Use of the strict liability procedure in the custodially oriented prison was administratively important because it emphasized the impersonal nature of security rules, the necessity for employee unity, and the importance of organizational integration. Use of the procedure also minimized the number of extenuating circumstances which guards could use as defenses against charges of rule violation. For example, guards could not defend tardiness with excuses indicating that they did not intend to be tardy. When twenty-nine employees were late because of a severe snowstorm, each was given a demerit—a total of three such demerits in a year was punished by a suspension without pay. Similarly guards who were not considered alert by a lieutenant passing their post were given demerits, just as were guards caught deliberately violating the rules in some way. Demerits for not being alert were, in fact, sometimes awarded without the guard's knowledge.

In criminal law strict liability procedures are used only for handling deviations from precise rules such as those specifying speed limits and the age of consent. In the custodially oriented prison, however, this procedure was used to handle deviation from expectations of supervisors regarding the proper use of discretion and common-sense handling to prevent inmates from becoming disgruntled. As indicated earlier, the rules regarding such expecta-

[12]See Jerome Hall, *General Principles of Criminal Law* (Indianapolis, 1948), pp. 279–322.

tions were necessarily imprecise. Because the rules were imprecise, deviation in turn was necessarily unintentional, not deliberate. A guard could not deliberately violate a rule (making himself a candidate for punishment) because he could not be told what the rule was. Yet there was no alternative to assuming, as in strict liability procedures, that such deviations were deliberate. Supervisors could use only negative evidence in estimating a guard's competence. As indicated, they were obligated to give demerits when they caught a guard violating security rules by using discretion or common sense in the handling of inmates. A guard could not be rewarded for doing his duty; he could only be downgraded if he did not conform to the rules designed to ensure that he would be alert and would enforce rules for inmates. Accordingly the educational devices used in responses to expectations that guards would minimize inmate disgruntlement necessarily were double-edged—in on-the-spot consultations guards were educated regarding proper conduct, but the fact that they had deviated from prescribed rules was, under strict liability procedures, ground for punitive action in the form of a demerit.

In these circumstances a guard could not do anything in the hope that it would bring him a high rating; low ratings could be avoided by doing nothing, by staying out of sight. Guard reactions took three principal forms, which cannot be discussed here: apathy, deliberate misconduct, and deliberate concealment. These of course were precisely the reactions which the system of close supervision was designed to prevent.

THE TREATMENT-ORIENTED PRISON

Contradictory directives for guards were even more apparent in the treatment-oriented prison. In this institution guards were expected both to guard and to use discretion in enforcing rules, just as they were in the custodially oriented prison. The principal difference was the objective of the exercise of discretion—to aid in treatment rather than to reduce disgruntlement. Although this institution's walls, gun towers, bars, locks, and rules revealed official concern for protecting society by repressing inmates, the stated policy was "to co-ordinate all the institution's facilities in a program of individualized treatment." Official emphasis, therefore, was on

the goal of rehabilitating inmates, who were not viewed as dangerous, conniving men, but rather as "clients" who needed the nonpunitive treatment services which the institution could provide.

The behavioral theory officially used was a mixture of humanitarianism, middle-class values, and psychiatric principles. One significant point of view was that conformity to prison rules is an undesirable restriction of inmates who need opportunities for self-expression and "acting out."[13] Inmate deviation from rules within the institution, like criminality itself, was often considered a consequence of *inability* to conform rather than as intentional and deliberate violation. Accordingly it was the duty of guards to respond therapeutically—to understand inmates and to help them with their problems, to avoid being rigid or punitive. Decision making was decentralized so that guards could handle inmates individually and could informally reward those showing signs of improvement. Thus, the discretion which guards in the custodially oriented prison were to use as a means for preventing inmates from becoming disgruntled was to be used here for rehabilitating inmates.

It was impossible, however, for administrators to use a guard's contribution to inmate rehabilitation as the only index of his competence. There were two principal reasons for this.

First, although inmate rehabilitation was an explicit goal of the organization, it was impossible to measure the institution's success in this regard. Numerous preinstitutional and postinstitutional conditions affect recidivism rates, making it impossible to correlate either high or low recidivism rates with institutional activities.[14] More specifically the contribution of any one guard to the rehabilitation or recidivism of inmates could not be measured. In judgment of guard competence, emphasis was placed on the production

[13]See Donald R. Cressey, Rehabilitation Theory and Reality, pp. 40–47.

[14]This inability to measure the effectiveness of crime prevention and corrections programs is extremely important to personnel engaged in the administration of criminal justice and even to workers in theoretical criminology, for it enables men with vastly different ideologies and theoretical conceptions to work together. See Donald R. Cressey, The State of Criminal Statistics, *National Probation and Parole Association Journal*, 3 (1957), 230–241; and The Nature and Effectiveness of Correctional Techniques, *Law and Contemporary Problems*, 2 (1958), 754–771.

of a desired end result, rehabilitated inmates, rather than on adherence to specified procedures for achieving this goal. But because the rehabilitative effectiveness of a guard could not be measured, the guard in association with inmates who became rehabilitated could not be given higher ratings than guards who had supervised inmates who became recidivists.

Second, the administrators' commitment to democratic values, such as equality and justice, and to the subsidiary organizational goal of protecting society from inmates required that they secure inmate compliance with rules. From the professional or treatment standpoint, guards were to act as referral agents for the professionally trained staff and were to handle inmates' minor emotional problems themselves. As indicated, this meant that guards were to be receptive, passive, and relaxed. But like employees of the custodially oriented prison, guards were also expected to guard. While they were to be relaxed and professional so as to contribute to inmate rehabilitation, they were also to maintain order and see that inmates performed work tasks that had to be accomplished if the institution were to continue operating.[15] Although institutional policy stressed inmate welfare and rehabilitation, guards were expected to contribute to the welfare of the institution and to the protection of society.

In this situation rules stating that guards should relax and, in so doing, contribute to inmate rehabilitation could not be explicitly stipulated nor enforced. In other organizations the fact that a worker's contribution to the desired end product could not be measured might have shifted emphasis in personnel supervision toward a system of evaluation on the basis of adherence to form and procedure, rather than on production of a standardized product. It was impossible to use this system in the treatment-oriented prison, however, because it is impossible to break down into a set of "rules for therapeutic action" the expectation that each inmate will be handled according to his individualized needs for treatment. Guards could not be given an explicit set of treatment rules to follow any more than guards in the custodially oriented prison could be given a set of rules for minimizing the number of disgruntled inmates. They could only be instructed to be profes-

[15]See Cressey, "Social Organization of Correctional Institutions."

sional, to relax, and to use discretion in handling inmates. Accordingly their performance could not be evaluated by determining the degree to which they conformed to form and procedure.

Furthermore the administrative commitment to create a relaxed, therapeutic climate made it impractical to use as criteria of worth either the guard's skill in enforcement of inmate rules or adherence to rules for the *custodial* behavior of personnel. In the first place, an explicit body of custodial rules for inmates, to be carefully enforced by guards, would have vitiated the official view that the inmate was essentially a sick person in need of help or treatment rather than a bad man in need of punishment or close surveillance. In the second place, an explicit body of rules for the custodial conduct of guards could not be formulated or enforced, because it was principally in reference to custodial relationships that guards were to relax. The nonprofessional supervisors who were expected to diffuse treatment values to guards also were expected to achieve the institution's custodial goal. But positive instructions for handling guards in a manner which would contribute to the therapeutic climate were as difficult to formulate and communicate as were positive instructions to the guards for handling inmates therapeutically.

Supervisors were, generally speaking, expected to do nothing which would make the guards tense or rigid, and this meant that they could not precisely formulate, let alone enforce, even custodial rules for guards. Thus the expectation that guards would contribute to the treatment of inmates deprived supervisors of punishment-enforced (bureaucratic or rank) authority to secure compliance with routines which either they or the administrators considered desirable from a security standpoint. And the fact that neither supervisors nor guards were treatment specialists meant that supervisors did not have the professional or technical authority to secure compliance with professional expectations regarding treatment. Consequently the supervisors' authority was neutralized; they could scarcely judge a guard as either *unwilling* to do his job, which would make him the subject of punishment, or as *unable* to do his job, which would make him the subject of education and therapy. One result was a system in which supervisors maintained with workers personal, friendly, neighborly, and equal-

itarian relations based on criteria other than work performance rather than formal, bureaucratic, authoritarian, supervisory, professional, or other relations ordinarily existing between managers and workers.

The relaxed supervision thus created pleasant working conditions but also complicated the criteria to be used in judging guard competence. Each guard had to decide for himself the degree to which either relaxation or custodial rigidity was to be used in particular circumstances. On treatment grounds guards were to overlook inmate deviations, but on custodial grounds they were, at the same time, to secure inmate compliance with rules. If they enforced discipline and insisted on inmate orderliness, they risked undesirable diagnosis as rigid, punitive, or neurotic, because such enforcement theoretically interfered with individualized treatment. But if they relaxed to a degree that institutional security and organization seemed to be threatened, then they risked undesirable diagnosis as lazy or unmotivated. One consequence was widespread inability of guards to discover the theoretical conditions under which additional effort in one area of behavior would yield desirable ratings on over-all performance.

CONCLUSION

In both a custodially oriented prison and a treatment-oriented prison multiple and contradictory criteria were used to evaluate the performance of guards, but a system which enabled the guard to commit himself to one activity in order to improve his over-all rating was not provided. In the custodially oriented prison he had to follow rules, but he also had to violate the rules in order to keep inmates from becoming disgruntled. In the treatment-oriented prison he was to be relaxed and therapeutic in order to rehabilitate inmates, but at the same time he was expected to preserve institutional orderliness.

These conditions seem to be inherent in the kind of internal organization that is necessary if a prison is to achieve the multiple and somewhat contradictory goals which society sets for it. Prisons differ significantly, if not uniquely, from other organizations, because their personnel hierarchies are organized down to the lowest level for the administration of the daily activities of men.

The guard, who is the lowest-level worker in a prison, is also a manager. He is managed in a system of regulations and controls from above, but he also manages, by a corresponding system of regulations, the inmates who are in his charge. Essentially because he is a worker, he cannot be given full discretion to produce a desired end product such as inmate docility or inmate rehabilitation, and essentially because he is a manager his activities cannot be bureaucratized in a set of routine procedures.

Norman Kaplan

The Role of the Research Administrator

The research administrator is seen as a "man in the middle," caught between the frequently conflicting goals of the research scientist and the research organization. In his attempts to maintain controls (many of which may be required by "higher authority") over the allocation and use of the scarce resources of the organization, the administrator is the focal point for the scientist's grumbling about "red tape" and worse, unnecessary interference with research. The levels of performance as well as the rewards experienced by administrators are affected by the ambiguities and inherent strains still incorporated in this relatively new role. Finally, the role of the research administrator may provide important clues to some of the basic problems involved in the large-scale organization of research.[1]

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AS research organizations have grown in size and complexity, a new organizational role has tended to emerge—the role of the research administrator. This role is still so new that there has been

[1]This is one of a series of reports growing out of long-term studies of research organization. The support of the U.S. Public Health Service, National Institutes of Health, Division of Research Grants (RG 5050 and RG 5289), is gratefully acknowledged.

very little systematic research concerning it.[2] Yet it seems clear that this role is of crucial importance for an understanding of many aspects of large-scale research organizations. This paper is a preliminary report on some of the key definitions and expectations of the role. In the process, some basic conflicts and dissatisfactions which appear to be structural features of the role are discussed. Finally, this analysis offers tentative hypotheses indicating how this developing role is affecting the character and policies of the research organization.

This report is based on a series of empirical studies of research organizations in the physical and natural sciences conducted over the past two years.[3] Formal visits were made to seventeen research organizations in universities, industry, and government, as well as to several independent nonprofit institutes. Although some of these have been in operation for several decades, most were either established after, or have been expanded considerably since World War II. The organizations studied employed from several hundred to several thousand persons, but typically about 600 persons were involved in the research operation.

An intensive case study was conducted in one organization for over four months; much shorter periods were spent at the other organizations. Data were obtained primarily through interviews, organizational documents, and observations. At most organizations detailed open-ended interviews were conducted with the research director (typically the vice-president for research in industry), the administrator (sometimes called business manager), and other top staff officials, as well as with research scientists. Detailed refer-

[2]This statement is made despite the extensive literature in the field of research administration; cf. especially George P. Bush, *Bibliography on Research Administration—Annotated* (Washington, D.C., 1954), which contains over 1,100 references. There has, however, been relatively little emphasis on the emerging role of the top-level research administrator discussed in this paper, as opposed to the research director who may still carry administrative burdens or to administrative roles at the laboratory, section, or division level within a research organization. With rare exceptions, moreover, the literature is anecdotal or polemical, and though illuminating for many purposes does not represent any systematic research effort.

[3]I am indebted to the many research directors, administrators, scientists, and others whose interest and co-operation made these studies possible. A fuller description of the study as a whole will appear in a forthcoming monograph.

ences and illustrative quotations from specific individual interviews have been kept to a minimum; the emphasis in this paper has been rather on analysis and the implications of the data as a whole.

Before we proceed, one possible source of confusion in terminology concerning the term "administrator" should be noted. The discussion will center around the *role* of the administrator and not on the specific individual occupying the position in any concrete organization. Reference is to the job description, the norms defining the duties, responsibilities, and relationships of the *highest* position in a research organization which is formally concerned with the nonscientific aspects of maintaining the organization. The highest position within the research unit concerned with the scientific aspects will be referred to as the research director or scientific director, regardless of his specific title in any given organization. The key distinction is between responsibility for the direction of the scientific program per se and responsibilities which focus on the nonscientific aspects of the program. While this distinction was recognized in the organizations included in our study, the exact location of the position in the organizational hierarchy as well as the particular definition of the job of research administrator varied from one organization to another.

This paper is divided into three sections. The first discusses varying definitions of the job of the research administrator, sources of recruitment for the position, and the place of the administrator in the formal hierarchy. The second section discusses the role of the administrator in the context of the goals of the research organization and of the scientists who work in it. The third section deals with selected aspects of the role which seem to be of special importance in understanding some of the inconsistent expectations in the role as well as some of the problems which emerge for the organization as a whole.

THE JOB OF THE RESEARCH ADMINISTRATOR

Although the title of research *administrator* (as opposed to director) existed in practically every research organization visited, the actual duties and responsibilities of the research administrator varied from one organization to another. Probably the most

restricted definition of the research administrator is that of business manager. In such organizations the research administrator may be responsible for purchasing, payrolls, personnel matters, and maintenance of building, equipment, and service operations (glass washing, construction and maintenance of laboratory equipment and so on). At the other extreme is the least restricted definition, and by far the most difficult to work with, the treatment of the job as a residual category. In addition to all the business aspects already mentioned, the research administrator may be responsible wholly or in part for the allocation of laboratory space within the organization, for relations of a nonscientific nature with the scientific staff, such as arrangements for travel, as well as numerous other activities. Much more will be said in the subsequent discussion concerning the specific duties and responsibilities of the research administrator. For the moment it may be sufficient to note that the range of duties of the research administrator is very wide not only within a given organization but also between organizations.

From one point of view it would appear that insofar as most of the duties of the research administrator resemble those of administrators in other types of organizations, there would be little difference between administrators in research organizations and in other organizations. Contradicting this is the widely held assumption that there is something very different about the administration of a research organization. This difference is sometimes put in terms of the peculiar character and personality of the scientist: he is supposed to be temperamental and to have an inherent dislike for administrators. This, however, is merely a surface manifestation of an attitude toward scientific research organizations which is basically different from the attitude toward other types of organizations. This difference lies in the fact that in a nonresearch organization the administrator is as qualified (or is supposed to be as qualified) as the men whom he directs in his administrative capacity. In a research organization, however, the scientist knows more about his job than the administrator does. This is a fundamental difference and an ever-present source of conflict in a research organization. The first encounter with this conflict is in the recruitment patterns for research administrators.

The Recruitment of Research Administrators

Since the role is such a new one, there are no standard sources for recruiting persons to fill it. Few educational institutions can claim to offer intensive programs of study to train students as research administrators.[4] Probably one of the reasons for the lack of such training is the fact that the job is still not very well defined, nor very well standardized, among organizations. Furthermore, there is little agreement on the extent to which there is a carry-over from general administrative theory and practice to the administration of research.

The first question to be answered before canvassing recruitment sources is whether the administrator has to be a scientist or not. On this question there is a good deal of conflict and heated opinion. Scientists in general tend to argue that the administrator must know what it is that he is administering, that administration is very simple, involving only logic, common sense, and a desire to do things systematically (which a scientist does by definition in scientific research anyway), and that consequently a scientist is pre-eminently fitted for this job. But even among the scientists who argue in this fashion, there is likely to be some contradictory feeling about the use of a scientist in this capacity, i.e., they believe that it is a waste of good scientific talent to use a scientist for administration. So in effect they frequently seem to argue for the use of "poor" scientists for administrative duties.

Since many others share the view that it is wasteful to have a scientist in a full-time administrative position, and since in addition there are many administrators who feel that there is a body of knowledge and practices which must be learned in order to be a good administrator, the argument is put forward that the administrator should be chosen from the ranks of administrators. In actual practice one finds administrators drawn from very diverse sources. Some have come directly from the business schools or the industrial

[4]American University is one of the few known examples of a nonengineering school that has offered courses in research administration for some time. Schools of industrial engineering, notably Columbia and M.I.T., have also been strong in this area. Most others including the business schools may have an occasional course but no intensive program of study and research in research administration specifically.

engineering schools, with some smattering of course work in the area of research administration, and have to be trained in the practices of a specific organization. Others have moved from scientific research to research administration, usually from within the same organization. In still other cases administrators have been drawn from other business organizations.

The diverse attitudes expressed toward the administration of research tend to depend on previous experience. For example, it is usually the men who come from business organizations who feel that there is little, if any, difference between the administration of a research organization and the administration of any other department of the company. Usually the differences that are apparent and recognized are clothed in personality terms—that is, scientists are said to have peculiar personalities and consequently one must handle the interpersonal relations more delicately and with some what more imagination. From the point of view of the scientist, the more business-oriented the research administrator, the less likely is he to merit the full confidence and co-operation of the scientist. It appears that the scientist likes to think that administration of a research organization involves some special problems which are not the same as those in other industrial operations.

One thing is clear, however, and that is that the sources of recruitment as well as the specific training, attitudes, and values of the research administrator influence the development of certain aspects of the research atmosphere in a particular organization substantially.[5] This is so partly because of the position of the administrator in the hierarchy of the research organization. According to the formal organizational chart, the research administrator helps to run the organization, but from the point of view of many scientists, he hinders the operation of the research organization and should, if he must be included at all, be somewhere down near the bottom.

[5]Although concerned primarily with second- and third-level administrators within a large organization, the evidence from the empirical studies by the Michigan group is extremely suggestive. See especially Howard M. Baumgartel, Leadership Style as a Variable in Research Administration, *Administrative Science Quarterly*, 2 (1957), 344–360; and Donald C. Pelz, Some Social Factors Related to Performance in a Research Organization, *Administrative Science Quarterly*, 1 (1956), 310–325.

The Place of the Research Administrator in the Organizational Hierarchy

The research administrator is hardly ever at the very top but almost always very near the top. Rarely if ever does he have responsibility for the research activity itself, but he is usually included as a part of the director's "team." On the organizational chart he is likely to be found just a little below the director and above most of the scientists. In those organizations publishing reports which include pictures of the key personnel, his picture will usually be included in the report. If the research operation is part of an industrial concern or of a government-bureau operation, the research administrator will usually be included in the top management council. In contacts with the public, whether they are stockholders, congressional committees, or boards of trustees, the research administrator will usually be included. Yet he is likely to be the only man among high-echelon personnel who is not a scientist and who does not have a Ph.D. As a nonscientist he is regarded by scientists as one of the low men on the totem pole.

Theoretically the research administrator does not make policy nor does he even influence policy. Historically the job arose because the routine and nonscientific aspects of the job of the research director became too burdensome and tedious. In some small research organizations it is still felt that a competent administrative secretary can handle most of these details adequately. Someone must see to it that the scientists get paid, that materials and equipment are ordered and arrive in good condition and within a reasonable time, that technicians and other auxiliary help are recruited as necessary, and so on. But with the growth of the research organization in size and financial status, it has become necessary to employ a full-time administrator. With the employment of a full-time administrator a distinction emerges between the goals of the scientist conducting research and the goals of maintaining the organization. Since this is a key distinction in the understanding of research organizations, we turn our attention to this area.

THE GOALS OF THE RESEARCH ORGANIZATION AND THE GOALS OF THE SCIENTIST

The main point at which the goals coincide is in the conduct of research—both the organization and the scientist are agreed on

the necessity and desirability of conducting research. To simplify the problem, assume for the moment that this is the sole goal of the scientist. The organization has at least one additional primary goal, namely, the maintenance of the research organization. This is not to say that the research scientist is not concerned with the maintenance of the organization, but only that he is much less concerned than the research director and research administrator. As a goal, the maintenance of the organization may lead to consequences that are in some respects in conflict with the goal of conducting research. For example, one way in which the organization is maintained is through adequate control procedures for receiving and disbursing funds for research. Such controls are considered necessary in order that proper accounting may be made to higher authorities. From the point of view of the scientist this may not always appear as a commendable set of activities or even a very desirable goal, but from the point of view of the director and especially the research administrator this often becomes a primary focus of concern.

The interplay of the values of science and the values of an organization of which science is a major activity has many consequences often unanticipated by either the scientists or the administrators. Thus it is important to the scientist that he be permitted a high degree of freedom in his choice of problem as well as in his decision as to when and how to pursue it. In a sense, therefore, the exact nature of the research problem five years hence is of relatively little importance (and may indeed be unknown) to the individual research scientist. To the director of the research organization and consequently to the administrator, the nature of the research problem five years hence or a year hence is of great importance, especially in terms of the maintenance of the organization. For example, in an industrial research organization it is obvious that the research program must be held within bounds reasonably approximating the profitable interests of the firm. If it is a government research agency, the research program must be held within the bounds set forth in the legislation affecting the agency and its appropriations. So in many research organizations the content of the research becomes of relatively great importance to the top echelons of the organization. This affects the research scientist when decisions have to be made concerning the expansion of some programs at the

expense of others, the termination of some programs, and the introduction of completely new programs of research.

In no organization visited has the research administrator himself made such decisions concerning the expansion or termination of a research program. In many, however, the research administrator has influenced such decisions directly or indirectly. He is usually asked for an opinion concerning the availability of space or the possibility of rearranging activities to create more space. Such decisions are ostensibly made on the basis of purely nontechnical considerations, such as the number of square feet of laboratory space available or not being used, and so on. But the administrator usually tries to anticipate the desires of his superior, the scientific director, and when he feels that the scientific director is not enthusiastically in favor of the expansion of a program, for example, he may suggest that there is not really enough room for such an expansion. In some organizations the administrator is deliberately used as a scapegoat for unpopular decisions which the scientific director may have to make.

Goals and Roles

The end product of the research organization is usually an idea or a finding incorporated in a report by the scientists. It may then be developed and end up as a product sold for profit; it may also end up as a published paper or book. Whether or not the research organization is successful or effective is extremely difficult to judge. In any case the research administrator cannot be held directly responsible for the success or effectiveness of the research of the scientists. But the administrator is held responsible for the effectiveness of the operations within the research organization.

If a scientist wants new equipment, if equipment is missing, or if the scientist has exceeded his budget, the administrator must know why. He must have the proper documents to make the organization accountable to the director and to his superiors, whether they are a board of trustees, higher echelons of the company, or perhaps Congress. This gives rise to a number of administrative procedures for obtaining equipment, for keeping inventory of available equipment, for employing new personnel, for traveling to scientific meetings, and so on. As a consequence, practically every-

thing that happens in a research organization is documented and must at some time pass over the desk of the research administrator. Frequently these documents are simply for his information. He cannot evaluate directly the scientific content of a document, but he has to act on it in other ways. Frequently he serves as a source of information, as, for example, when he indicates on a requisition for equipment the fund which is to be charged. Sometimes he must initiate action on his own. He may call to the attention of an investigator the fact that he is temporarily overexpended, that he no longer has any money left in his budget, or that he is not following the proper procedure to obtain equipment. In any case the research administrator becomes an active partner to the research activities of the organization.

The research administrator is frequently the first to admit that he does not have the scientific competence to make many of the decisions that are necessary. But a potential source of conflict within the organization is already apparent, since decisions concerning scientific research are frequently made (in part at least) on the basis of nonscientific criteria. This is at the very heart of the antipathy of the scientist for the administrator and his "red tape."

The Conflict between the Administrator and the Scientist

From the point of view of some scientists, the organization would function much more smoothly without a research administrator. But most scientists are more likely to express the opinion that it is the administrator's job to enable the scientist to conduct more research more efficiently. In other words, the best administrator is the one who frees the scientist to do his scientific work and minimizes the routine reports and forms that are admittedly necessary. Most research administrators would be inclined to agree with the statement that their primary task is to free the scientist to do his research. It is only after this general statement that divergences appear. From the preliminary interviews at hand it is possible to describe three types of administrators, with the reservation that these have been somewhat exaggerated to obtain sharper delineations of them.

At the one extreme is the research administrator who feels that freeing the scientist to do research can best be accomplished

through rigid adherence to the procedures of the organization. In his view rules, procedures, forms, and other administrative paraphernalia have been developed to assure the greatest efficiency and the greatest control within the limitations of the activities performed. If this is so, it follows that if the scientist would just adhere to the forms and procedures the administrator would have fewer difficulties in trying to iron out problems that have arisen, the organization would run more smoothly, and the scientist would be freer to do his scientific work.

The second type may be found at the other extreme; here the research administrator views his job in somewhat the same way as the scientists do, namely, as a necessary evil. He feels that his job is to save the scientist from as much of the routine forms as possible. He also feels that it is possible, within limits, to circumvent rules and regulations. Just so long as he can construct a reasonable account of what has happened to the funds and the equipment and other such details, he is happy to leave the scientists alone. Furthermore, he is aware of the fact that the scientist may want to do the same things in different ways at different times for quite legitimate reasons. This of course tends to make his job far more difficult. He not only has more work to do in terms of filling out more of the forms himself, but he also has more adjudicating and more manipulating to do insofar as he has less information for his own reports to the director and other superiors.

The third type of administrator is somewhere in between these two extremes. He tries to introduce as much flexibility as he thinks possible into the administrative procedures, but at the same time he would like to have as much information as possible for his own security. He is constantly caught in the cross fire between the demands of the organization as he sees them and the demands of the scientists as they are transmitted in complaints, bickering, and low morale. In this instance, he is frequently an unhappy pawn in the conflict between the administrative goal of maintaining the organization and the scientific goal of conducting research. He is free neither to change the rules to any considerable extent so as to minimize the scientist's administrative burden, nor to increase the burden very much to make his own job easier. He must wait until

enough complaints filter up to the scientific director to cause the latter to ask him why there is so much red tape. After reducing some of the red tape, he may later be asked why there is inadequate information and documentation for reports to the controlling body interested in the nontechnical aspects of operation. Consequently he is a man frequently caught in the middle of the organizational conflict.[6]

Frequently the scientists within an organization tend to view their problems with the administrator in terms of his personality characteristics.[7] Thus the closeness with which an administrator approximates any one of the three types just mentioned is frequently assumed to be a function of different personality types. The rigid authoritarian personality is viewed as inevitably being of the first type, and the nonauthoritarian and flexible personality is viewed as being primarily of the second type. Closer examination reveals the possibility that, although personality is a factor, for the most part it is the organization and its environment which determine the behavior of the research administrator. Some of these factors may now be discussed briefly.

The Characteristics of Higher Authority

The specific nature of higher authority will of course vary in industry, government, universities, and private nonprofit institutes of research. It may be Congress ultimately for a government agency, a board of trustees for an institute or a university, or a board of directors for an industry. The greater the number of nonscientists in higher authority, the greater probably will be the demand for

[6]Terms such as "man in the middle" and "marginal man" have been widely applied to a much more typical industrial role—that of the foreman. See, for example, F. J. Roethlisberger, The Foreman: Master and Victim of Double Talk, *Harvard Business Review*, 23 (1944–1945), 283–298; and Donald E. Wray, Marginal Men of Industry: The Foremen, *American Journal of Sociology*, 54 (January, 1949), 298–301. While the analogy between the role of the foreman and that of the research administrator breaks down at many crucial points, the study of such roles with built-in conflicts appears to be a particularly fruitful way in which to approach general problems of organizational structure.

[7]There is frequent and marked reliance, by scientists as well as administrators, on personality as an explanatory variable for a wide variety of problems. Cf., for example, Baumgartel, *op. cit.*, p. 345, for a similar reaction concerning "American administrators."

controls and information about the nonscientific aspects of the research operation.[8]

If the board of directors or its counterpart does not understand the goals of research scientists, it is likely to demand information on budgets, the disbursement of funds, the purchase of equipment, the number of people working, the square footage allowed to various operations, and so forth. In other words, it will tend to require the kind of information that its members get from the organizations with which they customarily deal. Under such a board the research administrator is likely to be required to collect such information and to be more rigorous in his procedures; consequently, he will have to require the scientists to be more rigorous with respect to such administrative procedures. To this extent the policies and the wishes of higher authority help to define the role of the research administrator.

The Control and Sources of Funds

If the research organization is dependent on funds from several sources, such as private foundations or government agencies, it is very likely that a number of different accounting and reporting procedures will be required. One government agency may require an annual report, another semiannual reports. Some of these agencies may require financial accounting at stated intervals and others only at the end of the grant period. In any case, to the extent that there are a number of such sources the problem of the research administrator becomes immensely complicated as it is usually his responsibility to help meet these various reporting dates and reporting requirements. In so doing he may institute procedures which the scientist will view as impediments to his research. In fulfilling these requirements, the administrator becomes, in a sense, the agent of these granting agencies.

The Scientific Director

On the face of it most scientific directors are by definition primarily interested in the scientific research and only secondarily interested in the administrative procedures necessary to sustain it.

[8]This hypothesis will be explored in a forthcoming paper on the nature of control and authority in research organizations; here its importance can only be noted briefly in relation to one facet of the research administrator's role.

However, procedures and policies originally designed for one purpose may frequently be made to serve other purposes as well. Thus the necessity for financial accountability and for control of expenditures and other policies affecting the research instituted by the directing body become a major point of control in the hands of the director. The director can use the necessity for such information and such controls as a way of effecting and changing policy. For example, he can stop a project which he feels is not making sufficient progress by informing the project director that it has been impossible to secure additional funds for it. The scientific director can go even one step further; he can get the administrator to do this for him. For example, a scientist reported his director's remarks as follows:

It is not a question of the worthwhileness of this particular project—I, of course, think it's extremely worthwhile—but it's out of my hands. My administrator tells me that the budget is overdrawn and the line item from which this project comes is exhausted. My hands are tied. There's nothing we can do. I'm awfully sorry but you understand it is not my decision.

Another tactic, frequently used by research directors, is to obtain the advice of the administrator concerning the availability of space for a new project suggested by one of the research scientists. Again the decision is not the director's since he can still assure the scientist that he personally favors the project but that the administrator informs him that there is no space available for it.[9] The important point is that the character of a director, his policies, and his goals also serve to influence the nature of the research administrator's job, and what is even more important, the character of the scientific research that is conducted in the organization.

[9]Of course, the scientist in question may be aware of the tactics of the director, as is suggested in the remarks just quoted in the text. Whether it serves the director better to have the scientist think that it is the administrator who is blocking his project is a question. Judicious use of this tactic by a director may deflect the potential hostility of the scientist onto the administrator and thus place the director in the position of a man caught in essentially the same organizational vise as the scientist. There is always the danger that the tactic may boomerang if the scientist becomes convinced that the director is not taking responsibility for his own decisions. There is also a potentially serious problem for the scientist in that he may be confused concerning the actual criteria used to reject his idea.

The conflict of roles and goals in the research organization is emphasized further by the divergent perceptions of the individuals involved of the rationale for various administrative procedures. A scientist is usually, albeit reluctantly, willing to accept a certain minimum interference as constituted by these forms if he feels that they are essential for the maintenance of the organization, even though he may not agree with the administrator on the primacy of this goal. If on the other hand the scientist feels that some of the forms are peripheral to this purpose (he usually feels that most forms are peripheral to *his* purposes), then dissatisfaction and ill feeling may result. He is especially irritated if he feels that the forms not only are taking up some of his valuable time and thus keeping him from research, but are actually delaying his research, as for example when he cannot get a piece of equipment because the forms have not been filled out correctly.

Furthermore, scientists' attitudes toward administrative procedures tend to be influenced by perceptions of the administrator's motives. If the scientist feels that the forms or the procedures are simply for the convenience of the administrator and his staff, he attributes them to base motives of the administrator.

Even when all would agree that a certain procedure or form is necessary for the conduct and maintenance of the organization, the administrator may feel that the burden of carrying out the procedure should be shared by those who benefit from it. A research administrator examining a form which requires information that he feels is at the scientist's fingertips and could thus be efficiently filled out by the scientist may, without considering the implications, insist that the scientist fill out the form since in the last analysis this is the most efficient way. The scientist's analysis of the over-all efficiency of the organization does not usually take into account the operations of the administrative functions. Consequently, even though he has the information at his fingertips and even though it may take the administrator somewhat more time to look it up and fill in the form, he may consider this the most efficient way to get more research done.

Such a view on the part of the scientist reinforces the ambiguity of the research administrator's role. To the extent that the scientist can insist that even though it may be more efficient for him to fill out the form the research administrator should do it since the

scientist's activity is more important, he reduces the status of the research administrator. On the other hand, to the extent that the research administrator is successful in spreading his own administrative load to the scientists, he asserts the superiority of his own position. It is small wonder then that many organizations are faced with a large number of such minor conflicts of interest.

Having reviewed briefly some of the sources of ambiguity in the role of the research administrator inherent in the conflict of goals in a research organization, we now turn to some of the other problems involved in the role. In particular, we wish to discuss some of the relationships of the research administrator outside as well as inside the research organization.

OTHER ASPECTS OF THE ROLE OF THE RESEARCH ADMINISTRATOR

The ambiguity of the role and the conflict in goals which may exist in the research organization affect still other aspects of the research administrator's role. These assume increasing importance as they, in turn, affect the research operation, the character of the research administrator, and the research organization as a whole.

The Accomplishment of the Goals of the Organization

In any report or assessment of the accomplishments of the organization, the research administrator, if mentioned at all (and he usually is mentioned), must list his accomplishments adjacent to the obviously more significant accomplishments of the scientists. At best he can say that his work as administrator helped to advance the research work. He cannot take any credit for the accomplishments of the research workers themselves in any other fashion. The system of assigning priorities and fame in science usually has not included the research administrator. As one research administrator noted ruefully, "About the only satisfactions we do get is when a scientist comes in and thanks us for having made some task easy for him. But these are few and far between—more often he comes in and berates us or complains."

The administrator may have little or no standing in the scientific community, but what is his standing in the administrative community? Again the most he can say is that he "helped," although he was not directly a member of the team that made the achievement.

Administrators in other types of organizations might have difficulty understanding the completely auxiliary role that he played. In most other types of organizations the man in the analogous position would have a more direct hand in the accomplishment of the goals of the organization and, consequently, a larger share in the rewards for such accomplishments. Moreover the goals of top administrators in other types of organizations are more likely to be essentially similar to the goals of others in the organization.

Policies and Procedures

The problem of policies and procedures alluded to previously is important here in the context of the comparison which a research administrator might make of his own role with that of chief executives in other types of organizations. In a research organization the lines between the formulation of policy and its execution are considerably sharper. Even in those instances mentioned earlier where the research administrator influences policy, he always does this with the tacit understanding that he is carrying out the research director's desires.[10] At best such policies as the research administrator may formulate are considered necessary evils by the scientists in the organization.

Relative Status within the Organization

As noted previously, the research administrator is usually very near the top of the formal hierarchical structure. His informal status within the organization, however, is often very near the bottom. For one thing, he does not wear a laboratory coat, which is usually a distinct mark of status among the investigators themselves. For another, his salary, while relatively high in most organizations, is likely to be exceeded by that of an increasing number of senior scientists who have few if any administrative duties. In other words, a man who is listed below the research administrator in the formal organizational hierarchy may actually be earning a higher salary than the man listed above him.[11]

[10]For a discussion of this distinction between the administration and formulation of policy in general, see Herbert A. Simon, "Recent Advances in Organization Theory," in Stephen K. Bailey *et al., Research Frontiers in Politics and Government* (Brookings Lectures, 1955; Washington, D. C., 1955), pp. 23 ff.

[11]This is a growing trend in research organizations, in industry and elsewhere. While contrary to accepted organizational doctrine, the mechanism of a "dual

Still another aspect of status is intimately related to the possibilities for upward mobility. As has been noted, the research administrator is usually as high as he can go within the research organization itself. With some notable exceptions, the research director is usually a full-fledged scientist. In most cases the research administrator cannot become the research director. He can and occasionally does leave the research operation and go into other areas of the parent organization in order to move into higher echelons. This is true in industry, but in an independent research organization with no other ties, the research administrator is as high as he is ever going to be. Many research administrators have pointed out to me that if they were in an organization not involving scientific research they would have risen to a higher position.[12]

The scientist within such an organization, however, has several avenues for getting to the "top." It is possible for him to become the chief executive, the research director. If he is not inclined in this direction, there are other kinds of "top" positions, which have no relationship to the formal hierarchy. In many research organizations the scientist who has complete freedom in defining his program of research, its size, personnel, and laboratory space, and who commands a salary at or near the highest salary paid by the organization, is frequently considered to be at the "top" by other scientists. Not so with the research administrator, who has only the normal channels for upward mobility, which in his case are closed.

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hierarchy" is gaining acceptance as a way of rewarding the scientist without taking him out of research into administration. For a discussion of how one company has worked out this dual hierarchy, see George L. Royer, "Evaluation Programs," offprint of a paper presented at the 34th Annual Meeting of the American Institute of Chemists, Akron, Ohio, May 23, 1957, 12 pp. This mechanism is also discussed in Herbert A. Shepard, Nine Dilemmas in Industrial Research, *Administrative Science Quarterly*, 1 (1956), esp. pp. 305–306; Francis Bello, Industrial Research: Geniuses Now Welcome, *Fortune*, Jan. 1956, pp. 145 ff.

[12]Despite the many frustrations experienced by the research administrator, our own very limited observations indicate a very low incidence of turnover in the job. Whether or not these observations are confirmed on a wider scale, more attention should be devoted to some of the positive rewards and satisfactions of the job. While our preliminary data are too scanty on this point, there are some suggestions of counterbalancing satisfactions, especially in the social community, where the research administrator apparently enjoys the reflected glory of being associated with scientists and scientific research.

The Technical Skills of the Research Administrator

While there may be some disagreement as to whether administration is a science or an art and whether there is an adequate body of knowledge for the study of administration, it is agreed that a body of practices and skills which can be transmitted to others has grown up around the administrative role. Some argue that these skills can be as easily applied to one type of organization as to another. Some even argue that skills applicable in any type of organization can be applied to a scientific research organization, but they are in a minority. Many are still inclined to argue that the research organization requires of the administrator a fairly unique set of skills.

Part of the problem lies in the fact that the model for most other types of organizations has been fairly well worked out over the last half-century or so. Whether this organizational model can be improved upon or not is another question, but the fact is that considerable discussion and experimentation have taken place concerning problems such as span of control, levels of organization, communication problems within and among the levels, and formal and informal organization. This is not the case with the research organization, which is still an emerging model. There is considerable disagreement as to whether the model can be simply borrowed from other types of operations and used with minor modifications in the research operation. As one vice-president for research put it: "There are just too many chiefs and too few Indians in a scientific research operation to use the normal organizational models."

One of the other fundamental problems from the point of view of an administrator is that the lines of authority, decision making, and communication are almost always on two levels, the scientific and the administrative. The division is not always distinct but it is always present, and the ambiguity as well as the necessity for the distinction are ever-present sources of difficulty in a research organization. Given these factors, the question arises: What kinds of skills can the research administrator use in a research organization? Some have argued that he must adapt the usual skills as best he can to a new situation which is not yet well defined while at the same time he perfects new techniques for research administration specifically. In other words, the skills that the research adminis-

trator does have may not be viewed as being the best possible skills for an administrator in a research organization; consequently, the research administrator is often stripped of even this aspect of his role and status.

Reference Groups of Research Administrators and Research Scientists

The structural constraints on the kinds of reference groups possible and considered desirable for research administrators is of considerable interest in the analysis of these roles and of research organization. From what has already been noted, it is to be expected that the reference groups for administrators and scientists would differ both in character and in location. From the evidence at hand this expectation seems to be confirmed. The research administrator is oriented toward management and administration, toward the internal organization, and in general toward groups not concerned with science as such. In contrast, the scientist is not oriented toward any of these groups but toward science, particularly his own area of specialization, and generally to the world of science outside his organization.[13] This contrast in reference groups serves to increase the distance between these two groups and between these two roles.

There are many indications of such differences. For example, research administrators tend to read journals of the American Management Association or other types of executive journals. They tend to belong to associations in the fields of management and administration. Since these are only slightly concerned with research administration, the major focus is on the management of industry or the management of large-scale government operations. Most often it tends to be the former, and thus a concern for efficiency as related to profit is frequently introduced.

[13]This distinction has frequently been discussed in terms of Robert K. Merton's "local" and "cosmopolitan" types. See Shepard, Nine Dilemmas in Industrial Research, pp. 298 ff. In the Michigan studies a similar distinction was made between "science orientation" and "institutional orientation." See Pelz, Some Social Factors Related to Performance, pp. 311 ff. Although we can only allude to it briefly here, a forthcoming paper will attempt to build on this distinction through the use of reference group theory and especially through an examination of the implication of differences in orientation of the various participants in a research organization, not just the scientists.

If the research administrator is so fortunate as to live in a large metropolitan area where there are other research organizations, he may have an important informal reference group in research administrators employed by other organizations. A number of these informal groups were encountered in interviews for this study. If, on the other hand, there are few or no other research organizations in his area, then the research administrator tends to interact most frequently with executives in other types of organizations.

The research administrator tends to identify with the organization itself. To the extent that there is any derived benefit and prestige from being associated with scientists and scientific research, the research administrator obtains some measure of it in this fashion. More important, however, is the fact that his job in a sense forces him to put the organization first in his thinking insofar as his major function is to maintain the integrity of the organization.

To the scientist, on the other hand, identification with the organization, if it exists at all, is conditional and can be, and frequently is, cut off at a moment's notice. Should the organization no longer provide him with the opportunity to conduct research freely, he will begin immediately to seek a position elsewhere.[14] His identification is with his field. His reference groups, as noted, tend to a large extent to be outside the organization, and he can maintain his position with these outsiders to the extent that he can conduct research which earns their approbation. Rewards which are solely internal to the organization and which are not recognized outside it tend to have relatively little value to the research scientist. Essentially the opposite is true for the research administrator. Such differing perspectives lead to the cultivation of different reference groups, aggravating some of the initial disruptive and divisive elements in the relationship of the research administrator to the research scientist.

[14]The scientist is being stereotyped here to some extent in order to emphasize the contrast between the reference groups considered appropriate for him and those considered appropriate for the research administrator. The Michigan studies have shown that scientists may be either "institution" or "science" oriented. Cf. Pelz, *op. cit.* Nevertheless, our data suggest that even where the scientist is oriented to the organization the basis and quality of the orientation differs from that of a research administrator. The fact that scientists, as compared wih administrators, perceive many more opportunities to move to other research organizations is only one significant indication of the difference.

SUMMARY AND CONCLUSIONS

The role of the administrator is far from standardized, as is to be expected from the fact that the research organization itself is far from standardized. This study of some aspects of the role of the research administrator reveals a number of points of strain and potential conflict between the administrator and scientist. These promise to be important for an understanding of many of the problems encountered in large-scale organizations of research. This analysis is necessarily preliminary because of the relatively small number of organizations studied, and the statements made should be regarded merely as hypotheses worth further study and testing in other research organizations.

The research up to this point reveals the following tentative picture of the role of the research administrator: he is a man in the middle—frequently caught between the conflicting demands of the scientists and those of higher authority within the organization. He is, in significant ways, different from his nearest counterparts in organizations not concerned with research, and he is also unlike the scientists with whom he has to deal in the research organization. His role in the organization is an ambiguous one primarily because the whole problem of organization for research is far from solved. He is frequently viewed as an impediment to the research but a necessity for the organization. He does not usually have the technical skill to make scientific decisions, yet he is usually involved in such decisions. He can never take direct credit for the accomplishments within the organization but must always be ready to receive the complaints of those who feel that he interferes with the accomplishment of these goals. His position in the hierarchy in formal terms is usually high, but in informal terms it is usually low. His status within the organization from the point of view of most of the people with whom he deals is also very low. His job is unrewarding in economic terms as compared with what he could earn in other types of organizations in a similar position, since his salary is held down somewhat by the fact that the scientists themselves have a relatively low salary scale. He can never reach the top of the research organization but must remain an auxiliary near the top. The usual recognition of the necessity of administrative practices is absent among research scientists. The administrator's train-

ing and education is usually inferior to that of a large proportion of those below him in the formal hierarchy. His reference groups differ from those of the others in that they tend to be outside of science and outside of research.

In addition to the necessity for much more systematic work on the role of the research administrator, certain other questions must be attacked to aid in the understanding of research organization. Probably the basic question is the type of organization most suitable for the conduct of research. It is by no means widely believed that large-scale organization and research necessarily go together. But where the benefits of large-scale research organization are said to accrue to research as they do to other types of activities, the research administrator plays a key role. Much more needs to be known about the nature of the position as well as the kind of man best suited for this role in a large-scale organizational framework.

Amitai Etzioni

Authority Structure and Organizational Effectiveness

An important factor in the ability of an organization to achieve its goals is its authority structure. If goals and authority structure are incompatible, goals may be modified to the extent that means become parts of the goals themselves. Several organizational assumptions, such as that staff authority is generally subordinated to line authority, are analyzed in different kinds of organizations to show that, in practice, they must be modified according to the major goals of the organization. In professional organizations, for example, traditional staff and line concepts must be reversed, since the staff "experts" are carrying out the major goal activity, while the "line" plays a service role.[1]

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ORGANIZATIONS are co-ordinated human efforts to realize specific goals. But in all organizations there is eternal strain which limits the scope and degree to which organizational goals can be attained. A major interest of the student of organizations is to determine the conditions under which attainment of such goals is promoted or hindered. One important factor determining the degree of goal realization is the nature of the authority structure of the organization. If the orientation of this structure is com-

[1]This paper is part of a larger manuscript now in preparation, tentatively called, *Toward a Comparative Study of Complex Organizations.*

patible with the organizational goals, the probability that these goals will be achieved is greater than in organizations where this is not the case.[2] In bureaucracies where the goals and the authority structure are incompatible, it is likely that the goals will be modified. Goals originally considered secondary may become of primary importance in the organization's activity; means may become ritualized, that is, conceived of as parts of the goals themselves; and activities which were considered illegitimate when the organization was established may become part of the goal structure.[3]

This paper is devoted to a discussion of this issue in terms of three different perspectives on the authority structure of complex organizations: (a) the relationships between staff and line, (b) the role of the organizational head, and (c) the functions of the authority center.

AUTHORITY STRUCTURE AND INSTITUTIONALIZATION OF GOALS

The study of organizations has proceeded mainly on two levels.[4] Studies are devoted either to case descriptions and analysis or to high-level generalizations and speculations on organizations in general. There is relatively little systematic examination on the middle level, as, for example, the study of various types of organizations.[5] Propositions believed to hold for all organizations have to be tested separately for each organizational type. Such examinations might show that assumed generalizations hold true only for certain types of organizations.[6] In this paper several such propositions will be scrutinized in an attempt to show that they cannot be applied to professional organizations. The three major generali-

[2]See J. G. March and H. A. Simon *Organizations* (New York, 1958), p. 195.

[3]Studies of police forces will illustrate this point.

[4]The terms organization and institution will be used interchangeably. In all cases the reference is to large and complex organizations which have a *formal* structure, thus excluding such social organizations as the family and the community.

[5]This point is elaborated somewhat further in the author's Industrial Sociology: The Study of Economic Organizations, *Social Research*, 25 (Autumn 1958), 303–324.

[6]For an example of comparative analysis or organizations that takes into account the limitations of these "generalizations," see James D. Thompson and Frederick L. Bates, Technology, Organization, and Administration, *Administrative Science Quarterly*, 2 (1957), pp. 325–343; James D. Thompson and William J. McEwen, Organizational Goals and Environment: Goal-setting as an Interaction Process, *American Sociological Review*, 23 (1958), pp. 23–31.

zations to be discussed are as follows: (a) In the ultimate analysis staff authority is subordinated to line authority. (b) Organizational units, especially the organization as a whole, are therefore headed by managers and not by experts. (c) Organizations have one and only one ultimate center of authority.

Staff and Line

There are two approaches to the relationship between staff and line. According to one approach the staff has no direct authority whatsoever. It advises the executive (line authority) on what action to take. The staff in itself does not issue orders and is not responsible for action. According to the second approach the staff, while advising the line on various issues, also takes responsibility for limited areas of activity.[7] In spite of important differences between the two approaches both agree that staff authority is subordinate to line authority, and they tend to identify line with managers or administrators and staff with experts and specialists. While it is obvious that there are some staff functions which are not carried out by experts and that there are some experts among the line personnel, it is suggested that there is a high correlation between line and managers and between staff and experts.

What is the relation between these two groups and the organizational goals? Managers are generally considered as those who have the major (line) authority because they direct the major goal activity. Experts deal only with means, with secondary activities. Therefore it is functional for them to have none, or only limited (staff), authority.

Manager and expert are the two major terms used in this paper. Therefore a few lines will be devoted here to some conceptual clarification. Managers and experts may be differentiated from four points of view: (a) role structure, (b) personality, (c) background, mainly in terms of educational and occupational experience, and (d) normative orientations.

The *role* of the expert is to create and institutionalize knowledge. The role of the manager is to integrate (create or maintain) organizational systems or subsystems from the point of view of the insti-

[7]On the two approaches see H. A. Simon, D. W. Smithburg, and V. A. Thompson, *Public Administration* (New York, 1956), pp. 280–295; also A. W. Gouldner, *Patterns of Industrial Bureaucracy* (Glencoe, 1954), pp. 224–228.

tutional goals and needs.[8] The expert typically deals with symbols and materials (although there are many who disagree with this point of view).[9] The manager deals with people. The two role types require different *personality* types. The expert who has intensive knowledge in a limited area, tends to have a restricted perspective. The manager has extensive, though limited, knowledge of many areas, and the resulting broad perspective is essential for his role. Experts are committed to abstract ideas and therefore tend to be unrealistic, whereas managers are more practical. Managers are skilled in human relations; experts are temperamental.[10]

Managers and experts differ in *background*. Experts usually have higher educations than managers and tend to enter their first job at a later age and at higher initial salaries. They often start at relatively high positions in the hierarchy but are limited in the range of their mobility. Managers enter their first job at a younger age, with less education, and at lower positions, but they move upward faster than the experts and some of them eventually get higher than any expert.[11] Whereas many experts remain more or less restricted to the same organizational functions, the typical manager is assigned to a large variety of tasks in what is called the process of broadening.

Managers' *orientations* differ considerably from those of experts. Managers are more committed or loyal to their specific organization than are experts.[12] Experts are often primarily oriented toward their professional reference and membership groups. While man-

[8]The roles of managers will be discussed here only with regard to the internal functions of the organization. Their roles with regard to environment will be disregarded because of space limitations.

[9]Experts can be arranged in a continuum from the less to the more skilled in human relations. Chemists, for instance, are on the average less skilled from this point of view than labor relations experts. See L. E. Danielson, Management's Relations with Engineers and Scientists, *Proceedings of Industrial Relations Research Association*, Tenth Annual Meeting, 1957, pp. 314–321.

[10]See Robert Dubin, *Human Relations in Administration* (New York, 1951), pp. 113–138.

[11]For a comparison, see M. Dalton, Conflicts between Staff and Line Managerial Officers, *American Sociological Review*, 15 (1950), 342–351; and C. A. Myers and J. G. Turnbull, Line and Staff in Industrial Relations, *Harvard Business Review*, 34 (July–Aug. 1956), 113–124.

[12]For a case study which brings out this point, see A. H. Stanton and M. S. Schwartz, *The Mental Hospital* (New York, 1954).

agers are often committed to the organization's particular goals, experts are committed to the scientific and professional ethos regardless of the particular needs and goals of their institution.[13]

Obviously though there is a high correlation among these four variables, they are not inevitably associated. Two major mechanisms explain how the correlation is maintained. First of all there is *selective recruitment*. People with managerial personalities and background are recruited to managerial roles,and those with the personalities and education of experts tend to enter staff positions. The second mechanism is *role adaptation*. People who enter roles which are initially incompatible with their personalities often adjust to their new roles. Whether they had latent tendencies to act in accordance with the new role or whether the new role meant deep changes in their personality structure need not to be discussed here. In both cases the actors will adjust to their new roles. In such adjustment the process of broadening produces managers from initial specialists; a parallel process produces semiexperts from managers who entered managerial roles in professional organizations. These processes explain in part also why there is no perfect correlation among the four variables discussed above. For example, people with the background of experts may fulfill managerial roles.

Institutional Heads

It is one of the basic characteristics of bureaucratic organizational structures to have one and only one center of authority. This is often vested in the role of the head of the organization. He is seen as the top of the chain of command, as the ultimate authority in the internal structure and as ultimately responsible for the organizational activity relative to external structures such as the community and the government. Institutional heads are often symbols of identification for members and employees of the organization.[14] Customers and other outsiders, such as the personnel of other organizations, tend to identify an organization with the organizational head. Institutional heads are in a strategic position

[13]A. W. Gouldner, Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles, *Administrative Science Quarterly*, 2 (1957), 444–480.

[14]The University of Liverpool, *The Dock Worker* (Liverpool, 1951), pp. 95–96.

to influence the implementation of proclaimed organizational goals.[15]

All organizations need to integrate their various activities into one operating whole.[16] This function is partially fulfilled by the organizational head. Since integrating is a managerial role, it follows that managers and not experts will head organizations. We shall return to this point.

Organizations Are Monocratic

As noted above, bureaucratic organizations have one center of authority.[17] This is one of the important characteristics which differentiate bureaucracies from feudal regimes.[18] This does not mean that all activities are directed from one center. Authority is often delegated. Organizations can be compared with respect to the degree to which authority is centralized. But even in decentralized organizations there is one center of authority where final decisions are made and conflicts among lower authorities can be resolved. The monocratic structure is one of the more important reasons why bureaucracies are considered as the most effective form of organization. Such a structure enables the top central authority, which is often strongly committed to the organizational goals, to retain control of much of the organizational activity.

On the basis of existing theory, then, one would hold three expectations: (a) Managers have the major (line) authority whereas experts deal with secondary activities, and therefore have only limited (staff) authority. (b) Institutional heads have to be manager oriented because their role is a role of system integration. If an expert-oriented person were to hold this role, the system would be alienated from its goals and might even eventually disintegrate because some functions would be overemphasized while others would be neglected. (c) Organizational goals can be maintained more effectively in organizations with one center of authority.

[15]See Philip Selznick, *Leadership in Administration* (Evanston, 1957).

[16]See Talcott Parsons, "Some Ingredients of a General Theory of Formal Organization," in Andrew W. Halpin, ed., *Administrative Theory in Education* (Chicago, 1958).

[17]For a discussion of this point, see M. Weber, *The Theory of Social and Economic Organization* (Glencoe, 1947), p. 337; Herbert A. Simon, "Decision-Making and Administrative Organization," in R. K. Merton, A. P. Grey, B. Hockey, and H. C. Selvin, eds., *Reader in Bureaucracy* (Glencoe, 1952), pp. 185–194.

[18]See G. Mosca, *The Ruling Class* (New York, 1939).

The rest of this paper will be devoted to an attempt to show that these generalizations apply to some organizations but not to others.

THE PRIVATE BUSINESS: AN AFFIRMATION

The organizational goal of private business is to make profits. The major means are production and exchange. While experts deal with various aspects of the production and exchange process, that is, with means such as engineering, labor relations, quality control, and marketing, the manager is the one who co-ordinates the various activities in such a way that the major organizational goal will be maximized. Profit making is his responsibility. That seems to be one of the reasons why modern corporations prefer to have people with administrative experience as top executives rather than former specialists such as engineers. In a study of the chief executives of American industry in 1950 administration was found to be the principal occupation of 43.1 per cent; finance the field of only 12.4 per cent; 11.8 per cent were defined as entrepreneurs; and only 12.6 per cent had been engineers.[19] People with scientific background such as research workers are even less likely to become heads of private business. Only about 4 per cent of the presidents of American corporations had such a background.[20] Corporations have different types of heads at different periods in their life cycle. But the heads are usually not experts at any period.

In general the goals of private business are consistent with managerial orientations. The economic goals of the organization and the bureaucratic orientations of the managerial role have in common the orientation toward rational use of means and development of rational procedures to maximize goals which are considered as given.[21] The social and cultural conditions that support modern economic activities also support modern administration.

When people with strong expert orientations take over the managerial role of the institutional head, a conflict between the organizational goals and the expert orientation can be predicted. The case described in *Executive Suite,* where the design engineer with strong craftsman commitments takes over the presidency of a private cor-

[19]M. Newcomer, *The Big Business Executive* (New York, 1955), p. 92.

[20]See G. H. Copeman, *Leaders of British Industry* (London, 1955), p. 136.

[21]See H. A. Simon, A Comparison of Organizational Theories, *Review of Economic Studies,* 20 (1952–1953), 40–48.

poration, should be considered atypical.[22] Usually commitment to professional values runs counter to the economic values of the organization.[23]

Homans reports an interesting case in which the influence of the experts was greater than it is in most corporations.[24] He discusses an electrical equipment company, which was owned, managed, and staffed by engineers. Management, which was in the hand of manager-oriented engineers, suffered from pressure toward professional values from the design engineers. The design engineers in the eyes of management were "prima donnas" and "temperamental," terms often used by management to describe experts. Furthermore, they were indifferent "to the general welfare of the company", that is, to profit making, as "shown by their lack of concern with finance, sales, and the practical needs of the consumer and by their habit of spending months on an aspect of design that had only theoretical importance." This caused considerable tension between the managerial and expert-oriented groups, tension to which this company was especially sensitive because of its high dependence on expert work and the special structure of ownership. A power struggle resulted, ending with a clearer subordination of the design engineers (staff) to the managerial engineers (line). This was mandatory "if the company was to survive and increase its sales," as Homans puts it. The treasurer (a nonexpert in this context) became the most influential member of the new management. In short, in a corporation where the experts had a strong power position, the existence of the organization was threatened, considerable internal tension was generated, and finally the organizational structure was changed toward a more usual structure with a clearer subordination of the experts. In other words, the organizational authority structure was made more compatible with the goals of the organization. Manager orientations and the institutional goals of private business seem to match. When an expert orientation dominates, this is dysfunctional to the organizational purposes.

[22]See E. Larrabee and D. Riesman, "The Role of Business in 'Executive Suite,'" in B. Rosenberg and D. M. White, eds., *Mass Culture* (Glencoe, 1957), pp. 325–340.

[23]See Thorstein Veblen, *The Engineers and the Price System* (New York, 1921), esp. pp. 70–81.

[24]George C. Homans, *The Human Group* (New York, 1950), pp. 369–414.

To sum up, the study of private business as an organization can be seen as an affirmation of the three generalizations of organizational theory presented above. Managers direct the major goal activities and have the major authority; experts deal with means and are in minor and subordinated authority positions. The organizational heads are manager oriented, and there is only one internal center of authority. All business organizations studied, including such decentralized organizations as General Motors and Bata seem to have one center of authority.[25]

PROFESSIONAL ORGANIZATIONS: A NEGATIVE CASE

The rest of this paper will be devoted to an examination of the relations between goals and authority structure in professional organizations from the three points of view discussed above. An attempt will be made to show that the three generalizations do not apply and therefore can no longer be seen as valid generalizations of organizational theory. The assumption of universal applicability seems to have been made initially because organizational theory was developed mainly on the basis of observation and analysis of governmental and private business bureaucracies. Although it cannot be demonstrated here, we would like to suggest that it is doubtful whether the generalizations apply to political organizations such as parties and trade unions, to religious organizations such as churches and monasteries, and to many other organizations.[26]

Professional Organizations—Definition

Professional organizations are organizations whose major goal is to institutionalize knowledge and to sustain its creation. Knowledge is created in research organizations (such as the Rand Corpo-

[25]See George Friedman, *Industrial Society* (Glencoe, 1955), pp. 325–329.

[26]For some insights and information on the relations between staff and line which seem not to match the "general" model, see on trade unions, H. L. Wilensky, *Intellectuals in Labor Unions* (Glencoe, 1956); on prisons, R. H. McCleery, *Policy Change in Prison Management* (East Lansing, 1957), esp. p. 27; Harvey Powelson and Reinhard Bendix, Psychiatry in Prison, *Psychiatry*, 14 (1951), 73–86; Donald R. Cressey, Achievement of an Unstated Goal: An Observation on Prisons, *Pacific Sociological Review*, Fall, 1958, 43–49; on the armed forces, James D. Thompson, Authority and Power in "Identical" Organizations, *American Journal of Sociology*, 62 (1956), 290–301; on advertising agencies, Martin Mayer, *Madison Avenue, U. S. A.* (New York, 1958), esp. pp. 102–104.

ration), spread in schools, created and spread in universities, and applied in hospitals.[27] Knowledge is also created and institutionalized in organizations other than professional ones, but only in professional organizations are these functions the predominant goals.

Staff and Line in Professional Organizations

We would like to suggest that in professional organizations the staff-expert line-manager correlation, insofar as such a correlation exists at all, is reversed. Although manager orientations are suitable for the major goal activities in private business, the major goal activity of professional organizations is, in its nature, expertness. Managers in professional organizations are in charge of secondary activities; they administer *means* to the major activity carried out by experts. In other words, if there is a staff-line relationship at all, experts constitute the line (major authority) structure and managers the staff. Managers give advice about the economic and administrative implications of various activities planned by the professionals. The final internal decision is, functionally speaking, in the hands of the various professionals and their decision-making bodies. The professor decides what research he is going to undertake and to a large degree what he is going to teach; the physician determines what treatment should be given to the patient.

Administrators may raise objections to planned activities. They may point out that a certain drug is too expensive or that a certain teaching policy will decrease the number of students in a way that endangers the financing of a university. But functionally the professional is the one to decide whether to accept these limitations on his discretion and whether the administrator is right in bringing up his limited point of view. It is of interest to note that some of the complaints usually launched against experts in private business are launched against administrators in professional organizations: they are said to lose sight of the major function of the organization in pursuit of their specific limited responsibilities. Experts in private business are sometimes critized as being too committed to science, craftsmanship, and abstract ideas; administrators in professional organizations are deplored because they are too committed to their specialities — efficiency and economy.

[27] Spreading and applying knowledge are the two major dimensions of the process of institutionalization of knowledge.

Many of the sociological characteristics of experts and managers in private business cannot be found in professional organizations. Experts enter professional organizations younger and at lower positions (namely, as students, research assistants, or interns) than managers do. Although the range of mobility of managers is usually relatively limited, a professional is more likely to reach the top position of the institutional head.

In private business overinfluence by experts threatens the realization of organizational goals, sometimes even the organization's existence. In professional organizations overinfluence by the administration is considered as ritualization of means, undermining the goals for which the organization has been established, and endangering the conditions under which knowledge can be created and institutionalized (as for instance, academic freedom).

Institutional Heads—A Role Conflict

The role of the institutional head in professional organizations constitutes a dilemma. It is a typical case of institutionalized role conflict.[28] On the one hand the role should be in the hand of an expert in order to ensure that the orientation of the head will match organizational goals. An expert at the head of the authority structure will mean that expert activity is recognized as the major goal activity and that the needs of professionals will be more likely to receive understanding attention. On the other hand organizations have functional requisites that are unrelated to their specific goal activity.[29] Organizations have to obtain funds to finance their activities, recruit personnel to staff the various functions, and allocate the funds and personnel which have been recruited. Organizational heads must know how to keep the system integrated by giving the right amount of attention and funds to the various organizational needs, including secondary needs.[30] An expert may endanger the integration of the professional organization by over-

[28]On this concept, see N. Gross, W. S. Manson, and A. W. McEackern, *Explorations in Role Analysis* (New York, 1958); Melvin Seeman, Role Conflict and Ambivalent Leadership, *American Sociological Review*, 18 (1953), 373–380; S. A. Stouffer and J. Toby, Role Conflict and Personality, *American Journal of Sociology*, 56 (1951), 395–406.

[29]Talcott Parsons, A Sociological Approach to the Theory of Organization, *Administrative Science Quarterly*, 1 (1956), 63–85, 225–234.

[30]On the concept of organizational needs, see P. Selznick, Foundations of the Theory of Organizations, *American Sociological Review*, 13 (1948), 25–35.

emphasizing the major goal activity, neglecting secondary functions, and lacking skill in human relations. Thus the role of head of professional organizations requires two incompatible sets of orientations, personal characteristics, and aptitudes. If the role is performed by either a lay administrator or a typical expert, considerable organizational strain can be expected.

So far the organizational needs have been discussed. The severity of the dilemma is increased because of the motivational structure of typical experts. Most successful experts are not motivated to become administrators. Some would refuse any administrative role, including that of university president or hospital chief, because of their commitment to professional values and professional groups and because they feel that they would not be capable of performing the administrative role successfully. Even those professionals who would not reject the distinguished and powerful role of organizational head avoid the administrative roles that are training grounds and channels of mobility to these top positions. Thus many academicians refuse to become deans and try to avoid if possible the role of department chairman. Those who are willing to accept administrative roles are often less committed to professional values than their colleagues.[31] The same can be said about administrative appointments in hospitals. Thus, for instance, in the mental hospital studied by Stanton and Schwartz the role of administrative psychiatrist is fulfilled at the beginning of the training period. It is considered an undesirable chore that must be endured before turning to the real job. Psychiatrists who complete their training tend to withdraw to private practice. From other studies, especially those of state mental hospitals, it appears that those who stay are often less competent and less committed to professional values than those who leave.[32]

Institutional Heads—Some Functional Solutions

There are various functional solutions to this dilemma. By far the most widespread one is the rule of the semiexpert. The semiexpert is a person who combines an expert background and education with a managerial personality and role. Goal as well as means activities seem to be handled best when such a person is the insti-

[31]Gouldner, Cosmopolitans and Locals.

[32]Ivan Belknap, *Human Problems of a State Mental Hospital* (New York, 1956).

tutional head. Because of his personal characteristics he is likely to be skilled in handling the needs and requests of his former colleagues as well as those of the administrative staff.

There are two major sources of semiexperts. One is the experts themselves. Some professionals feel that they have little chance of becoming outstanding experts in their field. Often the same people find that they are relatively more skilled in administrative activities. Thus they gravitate toward administrative jobs by participating on committees and taking minor administrative roles, and some eventually become top administrators. In contrast to the popular belief, most university presidents seem to be former experts. Wilson found that out of the 30 universities he studied 28 had presidents who had been professors, albeit none a very eminent scholar.[33] It seems that academicians who are inclined to take administrative jobs or are organization oriented, not only publish less in quantity and quality after they have entered administrative positions, but also tended to publish less before they accepted such jobs.

Of the heads of mental hospitals cited in a recent study, 74.2 per cent are physicians. Although there is no study on their professional eminence as compared to that of private practitioners, there is reason to believe that the heads of mental hospitals do not include the most successful psychiatrists.[34] Only about 22 per cent of the heads of general hospitals are physicians.[35] Where these are full-time jobs, the statement made about the heads of mental hospitals seems to apply here also. Although about 90 per cent of elementary and high-school principals have been teachers,[36] it has been pointed out that a poor teacher who occupies himself with administrative action is more likely to be promoted than a successful, child-focused teacher.[37]

[33]L. Wilson, *The Academic Man* (New York, 1942), p. 85.

[34]L. Block, Ready Reference of Hospital Facts, *Hospital Topics*, 34 (April 1956), p. 23. From statistics quoted by E. A. Kennard one seems warranted in concluding that out of 39 mental hospitals studied the heads of 35 were psychiatrists. See M. Greenblatt, D. J. Levinson, and R. H. Williams, eds., *The Patient and the Mental Hospital* (Glencoe, 1957), p. 45.

[35]See Block, *op. cit.*, pp. 121, 136. See also T. Burling, E. M. Lentz, and R. N. Wilson, *The Give and Take in Hospitals* (New York, 1956), esp. pp. 51, 53.

[36]F. M. Farmer, The Public High School Principalship, *Bulletin National Association of Secondary School Principals*, 32 (1948), 82–91; see p. 83.

[37]This point has been made by J. Ben-David in private communication with the author. Some indirect evidence is supplied in J. Ben-David, "The Professions and the

The second source of semiexperts is special training agencies. In recent years there has been a movement toward developing more and more specialized administrators, such as hospital administrators and educational administrators, and lately it has been suggested that research administrators be trained. Twelve per cent of heads of short-term general hospitals, 10.9 per cent of long-term general hospitals, and 6.5 per cent of mental hospitals are graduates of such courses.[38] Moreover, a considerable number of teachers return to universities to take courses in administrative education before they become school principals.

The advantages of specialized administrators over lay administrators are obvious. They are trained for their peculiar role and have considerable understanding of the organization in which they are about to function before they enter it. They are sensitized to the special tension of working with professionals, and they share some of their professional values. On the other hand they are less prepared for their role than semiexperts from the first source, who have a deeper indoctrinization with professional values, command more professional respect, and have more social ties with professionals than the semiexperts produced in university courses. It is therefore of interest that the first type of semiexpert is much more common than the second type. This may be due to the fact that such administrators have been trained only recently and that it takes time for these new trainees to work their way up in the various organizations. But it could also be explained partially by the fact that the first type is more functional.

A third way of solving the dilemma is found when an expert board nominates and supervises a lay administrator who runs the organization. Thus expert and managerial goals are taken into account, yet segregated with reference to individuals. The arrangement, which is the way most proprietary hospitals are run, seems to function relatively more effectively when those who are on the board constitute a large proportion of the professional staff of the organization. The major reason why this arrangement seems to be quite rare is that it means that the professionals must take financial

Social Structure in Israel," unpublished Ph.D. dissertation, Hebrew University, Jerusalem, 1955.

[38]Block, *op. cit.*

and administrative responsibilities for the organization — responsibilities which they often are not in a position or not inclined to take.

It is important to distinguish between an institutional head and an institutional figurehead. Since the institution needs legitimation in the eyes of the personnel, clients, and community, and this legitimation has to be of a professional type, there is a tendency to nominate as institutional head a well-known expert. Although this means in some cases that an expert takes over control of the organization, much more frequently it means that an expert is lost and becomes a semiexpert (see the discussion of role adaptation) or that the expert is the figurehead and some other person actually has primary authority. In this analysis we are referring to the real and not the nominal institutional head.[39]

Lay Administrators

Although most professional organizations are controlled by experts or semiexperts of one type or another, some professional organizations are controlled by lay administrators. By lay administrators we mean administrators who have no training in the major goal activities of the organization. This holds for 2 out of the 30 universities studied by Wilson, for less than 10 per cent of schools, for 20.5 per cent of the mental hospitals, and for about 38 per cent of the general hospitals.[40]

The strain created by lay administrators in professional organizations has been discussed above. When the hierarchy of authority is in adverse relation to the hierarchy of values, there is always a danger that the hierarchy of values will be reversed. Of course there are many other factors which may have such a distorting influence; all that is suggested here is that lay administrators are more likely to cause strain than are other administrators.

The major function of mental hospitals is to cure the patient; however, mental hospitals are often custodial institutions which serve as places to keep the patients so that they will not endanger

[39]For an interesting case of such a situation and its consequence for the problems discussed here, see M. Greenblatt, R. H. York, and E. L. Brown, *From Custodial to Therapeutic Patient Care in Mental Hospitals* (New York, 1955), pp. 42–43.

[40]See notes 34 and 35.

or disturb the society.[41] Although some custodial activities are an essential part of the means that the mental hospital has to apply in order to fulfill its therapeutic function, there is a constant danger that the means will become a major focus of its activities. Thus a mental patient will be transferred from closed to open ward, not when it is best for his recovery, but when it is most convenient for the staff or when he will be the smallest nuisance to the community if he escapes. As has been pointed out in a number of studies, the therapeutic goals seem to be what Selznick termed "precarious values."[42]

A similar strain seems to exist in some general hospitals. Overmanagement can occur when the administrator forgets that the chief purpose of the hospital is to care for the sick. Some hospitals are so bound down with "red tape" that professional care is handicapped by multiplicity of documentation, compilation of unimportant statistics and unwarranted restriction upon the discretion of the professional and technical staff.[43]

A similar distortion of the relation between goals and means seems to occur in some vocational schools.[44] These schools are established in order to train pupils in vocations which they will pursue in later years, but the predominant function of the institutions is often to keep teenagers off the street. As long as they fulfill this function, little attention is paid to the quality of the teachers, the adequacy of the equipment, and the relation between the vocations which the school teaches and those which the market can absorb.

Universities constitute a more complicated case. Whereas in the two cases discussed above the legitimate function is neglected and emphasis is put on means, here the dilemma is different. A secondary goal threatens to become the major goal. Although there is some controversy as to what constitute the primary and what the

[41]See Greenblatt, York, and Brown, *op. cit.*, and M. Greenblatt, D. J. Levinson, and R. H. Williams, eds., *The Patient and the Mental Hospital* (Glencoe, 1957), esp. p. 320.

[42]Selznick, *op. cit.*, pp. 119–133. For an interesting case study which deals with this problem in another professional organization, see B. R. Clark, *Adult Education in Transition: A Study of Institutional Insecurity* (Berkeley, 1956).

[43]C. U. Letourneau, The Evaluation of Hospital Management, Part III, *Hospital Management*, 81 (1956), 41–44.

[44]A nonscientific but quite insightful discussion of this problem in vocational schools is included in E. Hunter's novel, *Blackboard Jungle* (New York, 1956).

secondary goals of outstanding universities, it seems fair to conclude that a majority of the members of professional communities would see research as primary and teaching as secondary. This is well reflected in the prestige and promotion systems.[45] But there is constant danger that the university will respond to pressures to give more money and attention to teaching and less to research.[46]

There are many sources for these conflicting strains. Some values seem to be more precarious than others to begin with. Professionals themselves may generate such pressures; for, example, some physicians see in the hospital a research institution and try to refuse or to discharge uninteresting cases. The community in the form of the alumni association, the chamber of commerce, and the board of trustees is another source of these strains. But the head of the institution has a strategic position in this important institutional conflict. If he is in sympathy with the primary institutional goals, he can do much to neutralize the conflicting pressures and to mobilize the forces that support the primary institutional goals. If he himself joins those who try to give primacy to secondary goals, or ritualize means, or introduce illegitimate goals (as when, for instance, profit making becomes the primary goal of a hospital or patients who are mentally or physically ill are made to do the aides' work), the probability that the institutional goals will be distorted becomes very great indeed. Professional institutions are characterized by the fact that they cater to values which are usually upheld by the professional. Hence a lay administrator with a strong bureaucratic orientation seems to be more likely to endanger the professional goals than a semiexpert or an expert-oriented institutional head.

Center of Authority

Line and staff analysis as well as bureaucratic theory assumes that there is one major structure of authority (the line).[47] It may be very complicated and have many branches but it always has one

[45]See T. Caplow and R. J. McGee, *The Academic Marketplace* (New York, 1958).

[46]For a case study of such a pressure, see Hans L. Zetterberg, "A College for Adults" (forthcoming).

[47]See Max Weber, "The Essentials of Bureaucratic Organizations: An Ideal-Type Construction," reprinted in Merton, Gray, Hockey, Selvin, eds., *Reader in Bureaucracy*, pp. 18–27, esp. p. 24.

center of authority where final decisions are made and conflicts can be resolved.[48] The main authority line is directly related to the primary goal activity of the organization and only indirectly to secondary (means) activities.

In professional organizations there seems to be no line in such a sense. This has been pointed out before, and it has been suggested that this means that professional organizations have a functional structure of authority. As Moore has pointed out, this concept is far from being a clear one.[49] It usually refers to the fact that low-level actors are subordinated to two or more authorities at a time, each authority being responsible for a limited area of action. The hospital, for instance, has been cited as an organization with two lines of authority, one professional and one administrative,[50] and therefore it is suggested that it be seen as a functional organization.

We would like to suggest that in professional organizations there are indeed two types of authority but only the nonprofessional one is structured in a bureaucratic way with a clear line and center of authority. Various department heads (office, custodians, campus police, hospital kitchen, and the like) are subordinated to the administrative director and through him (in smaller institutions, directly to) the head of the organization. This line is responsible mainly for secondary activities. Thus we suggest that in professional organizations the staff, or personnel performing secondary activities, are administrators, clerks, and laborers and that this is the only part of the organization which has a clear line structure. The professionals who conduct the major goal activity do not form an authority structure in the regular sense of the term.

As far as research is concerned, each faculty member is to a very large extent free from any direct control by superiors. This holds to a large degree for the substance of his teaching as well. The physician's absolute authority over the treatment given to his

[48] See the author's A Case of Functional Differentiation of Elites, *American Journal of Sociology*, 65 (March 1959), 476–487.

[49] W. E. Moore, *Industrial Relations and the Social Order* (rev. ed.; New York, 1951), pp. 77–84. See also H. G. Hodges, Management of Universities, *Southern Economic Journal*, 19 (1952), 79–89.

[50] H. L. Smith, Two Lines of Authority Are One Too Much, *Modern Hospital*, 84 (1955), 54–64. See also J. Henry, The Formal Structure of a Psychiatric Hospital, *Psychiatry*, 17 (1954), 139–151.

patient is a well-known fact. Teachers in elementary and secondary schools are more closely supervised than university professors. There are visits in the classrooms and prescribed textbooks. But this supervision is far more lax and limited than any line supervision in industry, for instance. It is of special interest to note that principals try to avoid as much as possible their obligation to supervise the teachers. Principals devote, according to one study, 57.7 per cent of their time to administrative work, 26.6 to clerical work, and only 13.3 to supervision.[51] In short, while there is an administrative line in professional organizations for secondary activities, there is no clear line in the major goal activities and to a large degree each professional is left to rely on his judgement, that is, he has final authority.

Of course, there are many other sources of control than line orders and direct supervision of performance. For example, a great variety of rewards and sanctions encourage conformity; informal pressures are exerted by peers and others. But most of these mechanisms function also in nonprofessional organizations in addition to supervision, so that one can say that there is less control in professional organizations than in other organizations. Moreover, as far as the major goal activity is concerned, such control does not take the form of a clear hierarchy with superiors who issue orders and require performance reports. This does not hold to the same extent for students, research assistants, and interns who have a status similar to semiprofessionals and are not part of the collegiate organizational structure.

There are three areas of activity in professional organizations: (a) major goal activities carried out by professionals and almost completely under the authority of the professional who performs the activity or directs the semiprofessionals and nonprofessionals who perform it, (b) secondary activities performed by administrators and nonprofessional personnel under their control, and (c) secondary activities performed by the professionals. The latter include writing reports, preparing statistics, participating in public relations activities, and allocating facilities. In this third area there is sometimes a clear hierarchy and administrative predomi-

[51] P. B. Jacobson, *Duties of School Principals* (New York, 1941), pp. 18–19.

nance, and therefore there is room to misunderstand the nature of the professional organization and to see the professionals as part of an administrative line structure. But as far as a hierarchy exists in this realm, it is limited to what are primarily secondary activities; as far as the main goal activities are concerned, there is considerable autonomy. In other words the professional organizations are service organizations for professionals, who follow in the organizational contexts the values which as professionals they are committed to, namely, professional autonomy and immunity.

It is of interest to note that Weber suggested that the basis of bureaucratic authority is technical knowledge.[52] Parsons distinguished two types of authority: power authority (the power of a clerk over a subordinated clerk or over a client) and authority of knowledge (the authority of the professional private practitioner over his client).[53] There seems to be a basic incompatibility between expert orientation and bureaucratic orientation. This is circumvented in private business and in some other organizations by giving the expert functional autonomy in a limited area while subordinating him in major goal activities and decisions. In professional organizations this solution would be dysfunctional to the organizational goals. Therefore a different authority structure is constructed. Professional organizations are turned into service organizations to individuals and teams of professionals. The limited lines of authority which exist are mainly devoted to secondary activities involving service personnel and the service (nonprofessional) activities of the professionals.

STAFF AND LINE IN DIFFERENT PROFESSIONAL ORGANIZATIONS

Goal Structure

Professional organizations also differ considerably from the point of view of the relationships between goals and authority structure. One important factor is the goals themselves. The creation of knowledge seems to require more institutionalization of professional values than does the spreading of knowledge. This is one reason why academic freedom is more institutionalized in univer-

[52]Weber, *op. cit.*, pp. 335, 337.

[53]T. Parsons, Introduction in Weber, *The Theory of Social and Economic Organization*, pp. 58–60, n. 4.

sities than in other schools. The application of knowledge seems to enjoy as much, if not more, institutionalized protection than the creation of knowledge, but for different reasons. Creation requires freedom in order not to limit the inquiry. Application requires immunity in order to protect the practitioners from the consequences of unsuccessful applications. Thus from the point of view of goals, universities and hospitals are closer to the ideal type of professional organization than schools.

There are interesting differences among general and mental hospitals in this respect. The general hospital's status as a therapeutic organization is well established and therefore in general it has the required freedom and immunity. It can afford to have laymen as its head, semiprofessionals as its major personnel, and professionals imported from the outside. The mental hospital legitimation is less established for the clientele as well as for the semiprofessional staff.[54] Therefore the incorporation of the professional into the structure of the organization itself is functionally required.

Externalization versus Internalization

Another important differentiating factor is the division of labor between the professional organization and other organizations. All organizations rely to some degree for the fulfillment and regulation of some of their functions on other organizations and collectivities.[55] The point of interest here is which functions are handled by the professional organization and which are externalized. The more that professional functions are internalized, and administrative functions are externalized, the closer the organization comes to the ideal type of professional organization. Thus the school is from this perspective a highly professional organization. It has few administrative problems to begin with because it is not a total institution.[56] It relies considerably on families, community, social workers, police, and others to administer most of the nonprofessional needs of its clients. Hospitals, on the other hand, have to take care of most of the nonprofessional needs of their patients.

[54]See A. H. Stanton and M. S. Schwartz, *The Mental Hospital* (New York, 1954); and William Caudill, *The Psychiatric Hospital as a Small Society* (Cambridge, 1958).

[55]See March and Simon, *op. cit.*, pp. 70–76.

[56]On this concept, see E. Goffman, On the Characteristics of Total Institutions, *Proceedings of the Symposium of Preventive and Social Psychiatry* (Washington, D.C., 1957).

Most of the professionals (physicians) are not part of the staff.[57] Hospitals therefore have a much higher percentage of nonprofessional staff and many more administrative problems.[58] Universities are from this viewpoint similar to schools. Boarding schools, on the other hand, are very different in their personnel structure and administrative problems because they are total institutions.[59]

Research organizations are highly professional considering their goal of creation of knowledge.[60] Their structure differs considerably in terms of the externalization versus the internalization of nonprofessional functions. Some research organizations are incorporated into university structures to a high degree, as for instance the Institute of Industrial Relations at the University of California. These research organizations usually serve mainly as service organizations to professionals (supply space, secretaries, and statistical clerks) with only a limited research policy of their own. Other research organizations are relatively more independent and have to finance their activities themselves, as for instance the Stanford Research Institute. This type usually has a stronger administrative policy.

On the other end of the continuum are research organizations that are incorporated in nonprofessional and even authoritarian organizations such as the armed forces. As several interesting studies show, there seems to be considerable confusion in the structure of these research organizations.[61] Military principles of organi-

[57]In a study which compares two types of hospitals we see that English hospitals under local authority which employ medical staff are administered by medical superintendents, whereas voluntary hospitals which do not employ any full-time medical senior personnel are administered by lay administrators. See C. Sofer, Reactions to Administrative Change, *Human Relations*, 8 (1955), 291–316.

[58]The hospitals discussed here are "regular," cure-oriented hospitals. The more the hospital serves additional professional goals—as, for instance, teaching and research—the more it will tend to internalize professionals and become administered by M.D.s. See Burling, *op. cit.*, pp. 76–77.

[59]On the organizational structure of boarding schools, see the author's The Organizational Structure of "Closed" Educational Institutions in Israel, *Harvard Educational Review*, 27 (1957), 107–125.

[60]See C. Y. Clock, Some Implications of Organization for Social Research, *Social Forces*, 30 (1951), 129–134.

[61]See the special issue on research administration of the *Administrative Science Quarterly*, 1 (Dec. 1956); and H. A. Shepard, The Value System of a University Research Group, *American Sociological Review*, 19 (1954), 456–462.

zation and behavior are mixed with professional ones.[62] Strict observation of the protocol of the military hierarchy is demanded in some situations, and professional collegial relations are encouraged in others. The heads of many research organizations in the United States armed forces are experts or semiexperts. This can be explained in part by the fact that, although these research units are total organizations on the one hand, they rely to a large degree on other military units for supply and regulation of many of their nonprofessional needs on the other hand.[63] Thus administrative problems are minimized.

Of special interest from this point of view is a study which examines the effect of nationalization on the organizational structure of hospitals in England.[64] The study shows that, when administrative responsibilities were taken over by higher-level administrative units, the heads of single hospitals became more professionally oriented. This can be compared to the relationships between the superintendent's office and the school principal. As more administrative tasks are taken over by the superintendent, the principal can devote more time and energy to his professional function: improving the quality of teaching.

Mono versus Multiple Professions

A third factor which impinges on the balance between professionals and administrators and on the relationship between this balance and the process of goal implementation is the number of professions co-operating in one organization and their mutual attitudes. The greater the number and the stronger the tensions among the various professions, the greater is the need for a neutral administrator as final authority. The grammar school is from this point of view on one end of the continuum, with one professional group, the teachers. The university is on the other end, with a large number of professions. When there is strong rivalry among various

[62]W. J. McEwen, Position Conflict and Professional Orientation in a Research Organization, *Administrative Science Quarterly*, 1 (1956), 208–224.

[63]It is reported that of 20 laboratories studied all the heads were expert oriented. See H. Baumgartel, Leadership Style as a Variable in Research Administration, *Administrative Science Quarterly*, 2 (1957), 347; see also C. Shepard and P. Brown, *ibid.*, 1 (1956), 345–346; and McEwen, *op. cit.*, pp. 220–221.

[64]See Sofer, *op. cit.*, esp. p. 299.

groups of faculty, as for instance between humanities and natural sciences, a layman is often more functional as a university president than a professional. In general the university administrator functions often as an arbitrator among different professional groups (departments).[65] There is of course the danger, as in the political realm, that the administrator will create an alliance with one "party," but this seems to be rare because there are usually many small "parties" rather than two camps and alliance with one of them would not give the administrator too much help.

Hospitals are in the middle of the continuum. General hospitals are closer to the school from this point of view because they are dominated by one profession. Mental hospitals are closer to the universities because of their multiprofessional nature, with an uneasy dominance by psychiatrists. The overlapping functions of psychiatrists, clinical psychologists, psychiatric social workers, and physical therapists, as well as the different schools of treatment, make a neutral administrator and administration highly functional in some mental hospitals.

Private versus Public Organizations

One of the most important dimensions along which further study of the problems discussed here has to be developed is the question of the ownership of the professional organizations and the ways they are financed. Many professional organizations are financed partially through contributions or from tax money, and clients' fees play very different roles in the various organizations. In some cases they have no role at all; in others they are dominant criteria for action. Another aspect of the same problem is the way the professionals are rewarded. In some cases they are paid salaries, in others fees, by the organization or by the clients. These factors impinge on the relationships between the administrators and the professionals because they determine to a considerable degree who is representing the profit goal of the organization.

From the viewpoint of professional goals, the distorting potentials of a lay administrator seem to be highest in those "private" organizations where professionals are salaried. On the other hand,

[65] See Richard H. Sullivan, Administrative-Faculty Relationships in Colleges and Universities, *Journal of Higher Education*, 27 (June 1956), 325.

in those public organizations where the professionals are not salaried and the administrators represent public interests, the distorting potential may be minimized. Between these two poles exists a whole gamut of alternatives, which have yet to be explored.

CONCLUSION

The relationship between organizational goals and authority structures has been discussed from the standpoint of the influence of authority orientations on goal implementation. The application of three generalizations of administrative theory to professional organizations has been examined: (a) It has been suggested that in professional organizations staff and line concepts, to the degree that they can be applied at all, have to be reversed. The major (line) goal activity is carried out by experts. Managers have staff functions, that is, serve the major goal activities. (b) Institutional heads are either experts, semiexperts (former experts or specialized administrators), or lay administrators. It seems that the most functional heads from the point of view of organizational goals are the semiexperts. Whether former experts or specialized administrators are preferable has to be determined by further research and experience.

Professional organizations are monocratic organizations only with regard to service activities. The authority structure of the major goal activities is highly dispersed. To a large extent the final authority over research, substance of teaching, and therapy is in the hands of the individual professional. Thus professional organizations are either service institutions to professionals who are not an integral part of the organization, or service organizations in which professionals function with a high degree of self-determination.

Harold Guetzkow

Conversion Barriers in Using the Social Sciences

What is involved in converting basic social science knowledge into a form suitable for application in practical affairs? The author believes the conversion process to be threefold: reidentifying the theoretical variables and working out practical ways of measuring them in concrete situations; composing relevant models from among alternative extant theories; and making estimates of the important constants for each new use. The implications of these barriers for utilization are elaborated as they affect contemporary efforts to use social science.[1]

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WITHIN recent years there has been increasing interest in the social processes underlying the application of basic social science knowledge to practical affairs.[2] Little attention has been given,

[1]The ideas of the essay were developed in large measure in the course of informal conversations with colleagues and students while in the Graduate School of Industrial Administration at Carnegie Institute of Technology. The author's stay at the Center for Advanced Study in the Behavioral Sciences at Stanford University in 1956–1957 gave him opportunity to develop them more systematically.

This paper was read at the meetings of the Operations Research Society of America in San Francisco in November 1956 under the title, "A Model on the Application of the Social Sciences to Management Practice."

[2]Milton D. Graham, *Federal Utilization of Social Science Research: Exploration of the Problems* (Washington, D.C., 1954); Pendleton Herring and Paul Webbink, *Effective Use of Social Science Research in the Federal Services* (New York, 1950);

however, to the way the very structure of knowledge affects its conversion for application. In the social sciences the roles of scientist, engineer, technician, practitioner, and policy maker have not been well differentiated. It may be useful to sketch how the knowledge that the scientist develops may be converted by others for use and then to examine the impact of certain characteristics of basic knowledge upon the application process.

THE PRODUCTS OF SOCIAL SCIENCE

The basic products of the social scientists are tested theories, some of which have been consolidated into textbooks and summaries. In its more rigorous form this basic knowledge consists of models of concepts in their interrelations to one another. Sometimes the concepts are well formulated, even operationalized as variables; sometimes the variables so developed are formally interrelated in systems as sets of mathematical equations. The theories of the social scientist are abstract and general, as they must be to have wide usefulness.

The process of utilizing these theories is very different from the task of generating them. Applied knowledge is used toward particular ends, and the goals determine what information is relevant; theories are not valued of themselves, but only as they are applicable to the achievement of concrete, specific purposes. Although the client's own formulation of his end value often cannot be taken as a rigid given, as Gouldner points out, this essay does not deal with the problem of ends.[3]

This paper presents schematically the process of converting general knowledge to a form useful for making predictions in concrete situations, guiding action toward the realization of specific desired ends. The strategic implications of the schematization are then developed, especially as they mirror the differences between tech-

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Rensis Likert and Ronald Lippitt, "The Utilization of Social Science," in L. Festinger and D. Katz, eds., *Research Methods in the Behavioral Sciences* (New York, 1953), pp. 581–646; Rensis Likert and Samuel P. Hayes, Jr., *Some Applications of Behavioral Research* (New York, 1958); R. K. Merton and D. Lerner, "Social Scientists and Research Policy," in D. Lerner and H. D. Lasswell, eds., *The Policy Sciences* (Stanford, 1951), pp. 282–307; W. Schramm, *Utilization of the Behavioral Sciences*, Report of a Planning Review for the Behavioral Sciences Division (New York, 1954).

[3]Alvin W. Gouldner, "Explorations in Applied Social Science, *Social Problems*, 3 (1956), 169–181, esp. 174–179.

nology and science. To give concreteness to this discussion, examples are given by applying the knowledge of small group process to the operation of decision-making conferences.[4]

A SCHEMATIZATION OF THE CONVERSION PROCESS

The conversion of general knowledge into a usable form can be viewed as consisting of a threefold process: (1) the basic variables are reidentified and measured in concrete settings; (2) the relevant model involving these variables is selected and composed from among alternative theories; and (3) the magnitudes of the important constants in the selected system are determined, so that specific predictions may be made for each different situation. These three phases appear to constitute major conversion barriers to using basic social science knowledge in solving concrete social problems.

Reidentification and Measurement of Variables

The isolation and measurement of the variables in specific field situations is no little task. In given situations variables may assume a succession of magnitudes, although for periods their size may be relatively constant. Often the methodology developed by the scientist is too expensive or too elaborate for field situations. In the social sciences especially it may be necessary to use indirect techniques to get at the latent rather than the manifest expression of a given variable. The practical and ethical demands of the field sometimes require extensive modification of the original measuring devices.

Many complain that the devices of the scientist are clumsy and inappropriate for direct utilization. This is often true. Simplifying measuring devices is a prerequisite for successful application. In the Conference Research Project three observers were initially used in the field to collect data about administrative groups.[5] Yet, after completion of the basic analysis, only one technician was needed to gather data on participation levels, intensity of self-oriented

[4]D. Cartwright and A. Zander, eds., *Group Dynamics: Research and Theory* (Evanston, Ill., 1953); A. P. Hare, E. F. Borgatta, and R. F. Bales, eds., *Small Groups: Studies in Social Interaction* (New York, 1955).

[5]H. Guetzkow, R. W. Heyns, and D. G. Marquis, "A Social Psychological Study of the Decision-making Conference," in H. Guetzkow, ed., *Groups, Leadership and Men* (Pittsburgh, 1951), p. 62.

need, and so forth for the practical improvement of the conduct of the conferences in an organizational situation. But sometimes the social scientist cannot develop his measuring devices into usable form, for he does not know the requirements of particular field situations.

Model Selection

Choice of a theory from among alternatives is a crucial step in the conversion process. In applying basic social science knowledge, one can sometimes integrate various theories, if they are concerned with phenomena which are relevant to a particular problem. But sometimes the theories are incompatible; if one procedure is applied, another simply is not possible. This situation also arises when the applier has multiple goals which demand contradictory means.

Hayek argues that

> the task of recognizing in the real world . . . the conditions corresponding to . . . our theoretical scheme is often more difficult than the theory itself, an art which only those will acquire to whom the theoretical schemes have become second nature. We cannot state simple, almost mechanical criteria by which a certain type of theoretical situation can be identified, but we have to develop something like a sense for the physiognomy of events.[6]

There are at least three roots to this difficulty, two of which may be remedied. First, because social science is still in its early stages, its theories are often inadequate for application to a particular situation. Because of this, alternatives may yield but a half-fit, which makes choice among them difficult. This inadequacy sometimes gives the impression that social phenomena are "experienced by the individual actor on the social scene in entirely different terms" from those used by the scientist. The argument claims that

> the social scientist *qua* theoretician has to follow a system of relevances entirely different from that of the actor on the social scene. . . . His problems originate in his theoretical interest, and many elements of the social world that are scientifically relevant are irrelevant from the point of view of the actor on the social scene, and vice-versa.[7]

[6] F. A. Hayek, "The Dilemma of Specialization," in L. D. White, ed., *The State of the Social Sciences* (Chicago, 1956), pp. 462–473.

[7] L. Strauss, "Social Science and Humanism," in L. D. White, *op. cit.*, pp. 415–425.

As the coverage of social science theory broadens, all social events become relevant to the theoretician's interest. When social science theory becomes comprehensive, its description of behavior will necessarily cover those provinces of action usually reserved to men of practical affairs, even in areas where judgment and intuition now reign supreme. That the social scientist cannot predict in such complex social problems at the moment does not argue that prediction is impossible. Both researcher and applier want to predict, and for both the efficacy of their knowledge depends upon the adequacy of their prediction.

A second root of difficulty is the inadequate dissemination of basic knowledge among practitioners and lay users. The practical questions of the latter are disparate with the theoretical schemes. Often the applier merely asks for "more knowledge" instead of inquiring how a particular independent variable or two will exercise their effect upon a given, well-defined dependent variable. Both of these causes of difficulty in choosing the appropriate theory are remediable.

But the third root seems inherent in the nature of the social sciences in contrast to the biological and physical sciences. Many social situations have large numbers of highly interrelated variables with feedbacks. Instead of being able to work with quasi-isolated, miniature models — as the natural scientist does — the user of social science must immediately work with an interrelated system. Even though scientist and applier try to simplify, both are forced to reckon with the interplay among their variables, because variables often cannot be held constant without disrupting the social process itself.

But these feedbacks do not make the social systems fundamentally different from equally intricate biological and physical systems, even when the feedbacks in social systems are generated by the self-awareness of the actors. As has been pointed out, social science generalizations must be constructed with such feedback systems incorporated as integral parts of the model being used.[8]

[8]H. A. Simon, Bandwagon and Underdog Effects and the Possibility of Election Predictions, *Public Opinion Quarterly*, 18 (1954), 245–253; E. Grunberg, and F. Modigliani, The Predictability of Social Events, *Journal Political Economy*, 62 (1954), 465–478.

The perplexities of selecting among alternative theories, especially when they encompass different variables, may be illustrated by attempting to apply knowledge about small-group leadership to committee operation, with special reference to the impact of leadership upon group activity. Bales, Slater, and their associates present evidence that members often demand contradictory functions of their leaders; for example, providing idea leadership and simultaneously serving as group unifiers.[9] The Conference Research project found that leaders were valued when they were idea men with respect to the committee's procedures, but not when they determined the outcome of the agenda being considered by the group.[10] Are the theories contradictory? On the surface yes; actually no. The hypothesis resulting from the Conference Research project explains one reason why leaders in the Bales-Slater theory cannot perform both leadership functions. Leaders who serve as idea men try to dominate their committee's substantive agenda and thereby disrupt their groups. In ways like this seemingly incomplete and contradictory theories can be integrated.

Parametric Determinations

Another troublesome cognitive aspect of the conversion process is the need which general, abstract knowledge imposes upon the applier for specification of the initial conditions and weightings of the isolated variables. To use a theory to produce changes one usually starts from some point which becomes the system's initial conditions. Specification of these initial conditions enables one to telescope the past and to provide data essential in making predictions about the future. In addition, one must obtain information about the relative weightings to be assigned to particular factors in a given situation. These initial constants and relative weightings are often designated as the system's parameters.

The application of small-group findings to conference processes illustrates the concomitant importance of initial conditions and changes in variable weightings. Guetzkow and Gyr were able to distinguish two conditions on the basis of the type of conflict found

[9]P. E. Slater, Role Differentiation in Small Groups, *American Sociological Review*, 20 (1955), 300–310.

[10]Guetzkow, Heyns, and Marquis, *op. cit.*, p. 62.

in decision-making groups.[11] The two conditions were an initial situation in which there was (1) substantive conflict over agenda issues and (2) affective or emotional conflict, expressed as interpersonal strife. To obtain consensus on the final decisions in a group it is imperative to recognize the type of conflict initially dividing the group. If there is substantive conflict, one must emphasize the availability and use of facts; if there is affective conflict, one must provide ways in which the participants may withdraw from interpersonal contact to achieve decision consensus. Facts have little importance in achieving substantive accord when the group is in affective conflict, and interpersonal withdrawal has little effect upon eventual agreement when the initial conflict is substantive.

It is also necessary to ascertain the weightings of the variables in an on-going situation to make successful application of knowledge about face-to-face groups to committee operation. One of the central findings of the Conference Research project was its discovery of the detrimental effect of the members' self-oriented needs (such as their demands for status, personal dominance, and so forth) to the productivity and over-all success of decision-making groups.[12] In some situations this variable may have no weight because there is little expression of such self-oriented needs. In such cases the applier can implement consensus by increasing the orderliness and focus of the group's problem-solving activity rather than by attempting to satisfy the self-oriented needs during the course of the meeting itself.

In this case of self-oriented needs the magnitude of the variable in the on-going situation is independent of the initial conflict conditions. However, with respect to such variables as facts and withdrawal, as already described, the change in weightings needed is a result of interaction with the initial conditions.

FORMAL STATEMENT OF SCHEMATIZATION

Perhaps a summary in more formal terms will be useful in understanding this schematization of the processes of the conversion of basic knowledge for application. Social science knowledge

[11]H. Guetzkow and J. Gyr, An Analysis of Conflict in Decision-making Groups, *Human Relations*, 7 (1954), 367–381.

[12]Guetzkow, Heyns, and Marquis, *op. cit.*, p. 66.

in its more sophisticated form consists of the conceptualization of basic variables with operational measures and the establishment of models by which these variables are interrelated to each other over time. When the systems are formalized, they may be represented as equations with varying specification of precise relationships among the variables. For example, the relationship between consensus C and orderly problem-solving P and self-oriented need S, as mentioned above, may be represented as a system of variables at any given time $t\ (i)$, as follows:

$$C_{t(i)} = aP_{t(i)} - bS_{t(i)} + k\,,$$

in which the parameters a and b represent the strength with which the two independent variables are weighed, and k the bedrock amount of consensus (due to other factors) which would be achieved even when P and S are zero. The social scientist's task has been (1) to conceptualize the variables and to indicate routes for their operational measurement and (2) to specify the way in which they are related to each other.

The practitioner must in addition ascertain for different concrete situations the magnitude of the parameters (the constants a, b, and k), at the specific time $t\ (i)$ when the application is being made. Thus, should b be zero, the consensus depends only upon the value of P. The applier then needs only to exert efforts to increase P in order to increase C.

The relationship between the more general, abstract equations developed by the scientist and the specific form of the equations, complete with specific values for the constants and time subscripts, indicates why the scientist's general knowledge may be misleading to the careless practitioner. For example, a given variable or factor may have such a low loading as to make a set of factors in a given equation irrelevant for a particular situation. Let the first equation be complicated by adding the effect of "meeting the self-oriented needs" M of the participants during the course of the conference, as follows:

$$C_{t(i)} = aP_{t(i)} - bS^{\frac{1}{dM_{t(i)}}}_{t(i)} + k.$$

C is determined by the relatively complex relations existing between P, S, and M. When d (which represents the weighting given to the need-satisfying process M) is small or moderate, the

equation is nonlinear. When d is very great, as might occur when self-oriented needs of the members are easily satisfied, the second term approximates unity (the exponent $1/dM_{t(i)}$ approaches zero, and the number itself $[S_{t(i)}]$ approaches 1, as a number raised to the zero power equals unity), and variations in C are entirely and linearly dependent upon P, as follows:

$$C_{t(i)} = aP_{t(i)} + h\,,$$

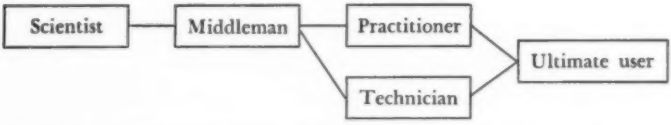
where $h = 1 - b + k$. Yet without realizing that large weighting of M changes the form of the equation, the naïve practitioner might be stimulated by the original equation toward fruitless efforts to change C by trying to reduce S.

In sum, there are three barriers in converting basic knowledge into applied knowledge: (1) the problem of variable reidentification, (2) the problem of the selection of appropriate variable systems, and (3) the labor of parametric determination for each concrete situation. What are the implications of this analysis for the easier conversion of social science knowledge?

IMPLICATIONS OF THE SCHEME FOR USE OF THE SOCIAL SCIENCES

The Nature of Social Engineering

In order to pursue the implications of these barriers to the social processes involved in applying basic knowledge, it may be useful to differentiate various social roles involved. In 1947 Herring posited the need for a "social science technician," using the term broadly to mean "an individual who has been professionally trained to apply to practical situations the facts, generalizations, principles, rules, laws, or formulae uncovered by social science research."[13] Schramm presented an "anatomy of utilization" by describing a four-link chain between scientist and final consumer, as follows:[14]



[13]Pendleton Herring, The Social Sciences in Modern Society, *Social Science Research Council Items,* March 1947, p. 5.

[14]*Op. cit.*, p. 39.

An example is found in industry: physicist — mechanical engineer — production manager and technician — product user.

If this analysis of the conversion barriers is adequate, an expansion of the "middleman" function is required. Among practitioners whose life work is concerned with individual and social behavior, such as social workers, educators, lawyers, administrators (in business and in government), and politician statesmen, there is much reliance upon intuitive knowledge, applied with skill and art derived from long experience. As information in the social sciences increases, there is more need to differentiate the expert in social science knowledge from both the social scientist and the practitioner. The social engineer is the broad-gauged "middleman" who knows how to transform basic knowledge from the various social science disciplines into usable forms. He differs, too, from the technician (the pollster in business and industry, for example) whose competence is restricted and who may be only slightly familiar with the fund of basic knowledge underlying his specialization.

What assignments should be given to these social engineers?

1. Work by social engineers on practical alternative measures of a given variable is needed, once a variable has been conceptualized and operationalized. A danger in the successful simplification of measuring devices is too easy utilization with consequent misapplication. The widespread misuse of various economic indices such as the cost-of-living measure in government, unions, and business suggests the confusion sometimes induced by partisans who distort for their particular organization's gain. But just as we have not deprived ourselves of micrometers and ammeters in the physical sciences because they are misused, so misuse should not delay efforts to accelerate simplification in the social sciences too. The reduction in costs made possible by such simplification often determines whether it is feasible to use the basic knowledge in concrete situations.

2. Social engineers must select appropriate theory from the alternatives, if they are fortunate enough to find relevant theories within a given problem area. This demands a thorough knowledge of the alternatives. Should alternative systems give about the same result, choice among them may be made on criteria other than achievement of one's immediate application goals.

Gouldner argues that choice of the concepts involved in an

application depends on such factors as their accessibility to control and whether the "instrumental management of a variable would violate" the values of the group involved.[15] When alternative models allow alternative interventions, such criteria become most appropriate. Economic criteria are always important in choosing among alternatives.

The engineer may also be able to choose that system for which his errors in measurement are not critical. For example, using the equations tailored by Simon and Guetzkow for Festinger's model of pressures for uniformity in face-to-face groups, a thoroughly trained social engineer would choose that subsystem in which the stability point is not critically affected by the magnitude of error that he knows he makes in estimating the parameters.[16]

Because variables involved in practical problems are often not divided as they are among the traditional disciplines, social engineers must be broadly trained. Because the fund of knowledge is increasing, they must also be allowed adequate time for continuous updating of their knowledge across the disciplines. Exemplary demonstrations of attempts at the updating of "middlemen" are found in the seminars of the Foundation for Research on Human Behavior.[17]

Yet to demand a competent grasp of the relevant storehouse of information does not imply that the tasks of the social engineer are identical with those of the social scientist, as Hayek implies when he asserts, "We can...only rarely delegate the application of our knowledge but must be our own practitioners".[18] Scientists engaged in basic research are handicapped as social engineers because they may fit practical problems to their academic traditions, instead of allowing the problems to dictate the particular fund of knowledge to tap. One of the advantages of the "operations research" approach to practical problems is its neglect of the boundaries of the traditional disciplines.

[15]Alvin W. Gouldner, Theoretical Requirements of the Applied Social Sciences, *American Sociological Review*, 22 (1957), esp. 96–98.

[16]H. A. Simon and H. Guetzkow, A Model of Short and Long-Run Mechanisms Involved in Pressures Toward Uniformity in Groups, *Psychological Review*, 62 (1955), 56–68, and Mechanisms Involved in Group Pressures on Deviate Members, *British Journal of Statistical Psychology*, 8 (Part II, 1955) 93–101.

[17]Likert and Hayes, Jr., *op. cit.*

[18]Hayek, "The Dilemma of Specialization," p. 470.

3. Perhaps the most startling implication of the foregoing analysis is that determination of initial conditions and factor weightings must be repeated by the social engineer each time the concrete situation changes. For example, in using psychometric instruments for personnel selection, one finds that each job continues to change. This requires revision of the screening devices constructed for the evaluations. Even after one has "engineered" a suitable test for a particular job specification, one must maintain monitoring devices to ensure that the solution developed for the job at one time is still applicable at a later time, when the nature of the job may have changed.

Even in the thoughtful report issued by the Russell Sage Foundation there seems to be misunderstanding of this implication. For example, in discussing the work of the Foreign Morale Analysis Division of the Office of War Information and the Military Intelligence Service, the authors say that the facts of the "inactive social science programs have now been compiled and can be drawn on for social engineering," as if to assume that such particulars will be useful ever after, despite changes in the morale of nations.[19] Failures in the workability of social science knowledge may be traced to inadequate assessment of initial conditions and incorrect estimates of the weightings attached to particular factors in a given problem situation.

TECHNOLOGY VERSUS SCIENCE

Gradually a large, versatile battery of practical, operational measuring devices will be accumulated. More and more useful handbooks, summarizing alternative variable systems, will be developed. Compilations will be made of the ranges over which the parameters can sweep, and some of them may even turn out to be relatively stable, approximating the ever-useful constants of the physical sciences.[20] These developments will constitute the technology of the social sciences.

As social science theory improves, more social inventions will arise from its development. These by-products of theory — the intelligence test, the panel survey methodology, and the "process

[19]Herring and Webbink, *op. cit.*, p. 44.

[20]Wesley E. Woodson, *Human Engineering Guide for Equipment Designers* (Berkeley and Los Angeles, 1954).

observer" for small groups — will proliferate an array of contrived social phenomena about which more will be known than we know about the extremely complicated systems existing in nature. In the physical sciences the engineer does better in predicting the behavior of the machines he contrives than the phenomena he finds in "raw" nature. For example, the automotive engineer can predict the characteristics of the gasoline cylinder explosion, a creation of his own, much more adequately that the physical chemist can predict the details of flame combustion. Likewise, the social practitioner will understand his miniature contrived social systems better than the systems he encounters in the tradition-rooted world about him. This development will suggest to the naïve observer that social phenomena perhaps are not as difficult to predict as they were earlier thought to be. Actually, however, the engineer will now be working in areas where he has relatively more understanding than he has about social systems occurring in nature.

The difference between science and technology is not clearly drawn in the social sciences. Although the work of the scientist is the isolation of variables and the construction of theories which interrelate them, the basic researcher in the social sciences often misunderstands his task. Sometimes he squanders his limited research resources on parameter estimation, even though the size of a particular parameter (except when it is zero) usually would not disprove his theory. Nor can the parameters discovered by the basic researcher in his laboratory often be applied directly to practical, field situations. The initial conditions and variable weightings must be determined for each situation. (Although this essay has not described how the contact of the applier with actual social problems provokes the insights of the basic researcher, the case is well documented elsewhere.[21])

SUMMARY

The intellectual task of the social science researcher is different from the requirements imposed when the basic fund of knowledge is to be used in concrete social situations. Work in the basic sciences

[21] J. D. Bernal, "Fundamental and Applied Aspects of Research Problems," in National Physical Laboratory, *The Direction of Research Establishments* (London, 1957), esp. pp. 3, 4, 9 ff.

involves isolation of variables, development of operational measurements, and establishment of models to represent relations among the isolated variables. To apply this knowledge, however, a threefold conversion must be undertaken: (1) The basic variables must be reidentified in the field situation, and practical operational measures must be developed at practical costs. (2) Appropriate selection of alternative variable systems must be made, so that relatively accurate consequences of action may be predicted. (3) Adequate estimates must be made of the parametric values involved in specifying both the initial conditions and the variable weightings in order to apply the chosen model to a particular situation. These are three important barriers to more effective use of basic social science knowledge.

Problem situations often demand systems which cross the traditional academic disciplines. There are distinct differences in the intellectual tasks confronting the social scientist and the user of social science knowledge. Indications are that experts needed for using knowledge are different from those needed for its discovery.

Gerhard W. Ditz

Industrial Administration in Communist East Europe

The author discusses three administrative problems which appear endemic to Communist industrial organizations: (a) externally imposed overbureaucratization, (b) conflict between the managerial responsibilities of the plant manager and the politically supported authority of works councils and plant committees, and (c) informal managerial practices which circumvent the rationale of economic planning but are indispensable to operational flexibility. Taking the coal industry of Communist Czechoslovakia as a specific example, the author analyzes these problems on the basis of public criticisms and industrial performance records published in Czechoslovakia.

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WESTERN perspectives on Communist industries focus nowadays on unexpected Soviet achievements in science and technology. The contention is that the fruits of these achievements will in due course be visible in over-all industrial production, which eventually will surpass our own. As obstacles on this road Communist spokesmen have been prone to admit the existence of problems that are administrative rather than technological. Over the years one can detect a trend away from exposing poor administration

and faulty organization in individual plants to discovering these flaws in whole industries and, finally, in the administration of industry at large.[1]

This paper is based on studies of some basic industries in European countries which came under Communist control after the last war.[2] All these industries had been in operation in the pre-Communist era and several had applied administrative principles similar to those of the West. Upon inquiry into their current practices and their underlying administrative assumptions it was found that the basic problems in different industries and different countries were similar and, moreover, that the general findings were consistent with those made in earlier studies of Soviet industry.[3]

This prevalence of similar formal rules and informal practices, irrespective of type, size, history, and technological status of the particular industry, attests to the strict subordination of industrial organization to the political system and ideology. The monolithic power structure tends to force each industry into a standardized administrative mold, evoking in turn similar adjustive practices and similar problems of performance. Consequently, whenever those in political power decide upon administrative changes, these tend to be as unsuited to the particularities of the individual industry and plant as was the original blueprint.

CENTRAL BUREAUCRATISM

Regime-sponsored criticism of bureaucratic practices has always been present in Communist states, but it has become markedly more extensive in the post-Stalin era, both in the Soviet Union and in the satellite states. Moreover, there has been some indication

[1]Krushchev's speech to the Supreme Soviet of May 7, 1957, announced radical plans for industrial decentralization.

[2]These studies were conducted by the Research Branch of Radio Free Europe during 1956–1957. The author concentrated on the coal industry in Czechoslovakia, while associates investigated the Czechoslovak engineering industry, the Polish coal industry, the Hungarian machine industry, and the Bulgarian textile industry.

[3]David Granick, *Management of the Industrial Firm in the USSR* (New York, 1954); Joseph S. Berliner, The Informal Organization of the Soviet Firm, *Quarterly Journal of Economics*, 66 (Aug. 1952), p. 3; Reinhard Bendix, *Work and Authority in Industry* (New York, 1956); and R. Bauer, A. Inkeles, C. Kluckhohn, *How the Soviet System Works* (Harvard, 1956).

that propagandist measures in this area have been increasingly supplemented by administrative changes. What are the specific phenomena these regimes try to combat?

Bureaucratic processes are natural concomitants of large-scale organizations, and in the politically planned economies of Communist states centralized bureaucratization in particular inevitably received a major impetus. For example, when the Communists came into power in Czechoslovakia, the structure of earlier nationalized industries was drastically changed.[4] The preceding coalition government had planned to run these industries on lines similar to those followed by the British, that is, with extensive administrative decentralization.[5] The Czechoslovak Communists, following the Soviet model, organized collieries and ancillary plants into trusts, which were directly administered by the ministry in Prague. This concentration of industrial control not only was consistent with Communist administrative principles, but also served the objective of making far-reaching changes in managerial personnel.[6]

The administrative centralization of an industry widely dispersed geographically and the subordination of all managerial decisions to newly codified rules necessitated a considerable increase in administrative personnel. Every functional position at the colliery had to be duplicated and supervised both at the intermediate (trust) and central (ministry) levels. Long-range total planning required the establishment of detailed operational norms covering output, costs, manpower, mechanization, and various

[4]Although the study of the Czechoslovak coal industry is used to illustrate the generalizations in this paper, most of these hypotheses were checked against data from all the industries listed in note 2.

[5]Nationalization of this industry was promulgated by the postwar coalition government in 1945. Under the preceding German occupation the independence of former colliery companies had already been drastically reduced. For a historical survey of these events, see J. Goldman, *Czechoslovakia: Test Case of Nationalization* (Prague, 1947); Dorothy W. Douglas, *Transitional Economic Systems: The Polish-Czech Example* (London, 1953); and Ladislav Stepan, *The Coal Industry in Czechoslovakia* (Mid-European Studies Center; New York, 1954). On British nationalization, see Gerhard W. Ditz, *British Coal Nationalized* (New Haven, 1951).

[6]Although there is no reliable statistical information the extensiveness of managerial turnover is indicated in works cited earlier and in other sources. The primary consideration of the regime was to secure politically reliable managers. This necessitated sacrificing technical qualifications for these positions. This in turn led to changes in the colliery organization which will be discussed presently.

other aspects of managerial decision making. The specification of these norms and the supervision of their fulfillment required large administrative staffs at each level of the industry.[7] Further increase resulted from the device common in Communist administration of running parallel lines of supervision to the same area of operation, each line reporting independently to the authority above.[8]

As a result administrative and supervisory personnel in that industry about doubled in the decade during which total manpower actually declined.[9] The ratio of administrative to productive workers, estimated to be about 12 per cent for this industry, constitutes an index of bureaucratization. Although comparable ratios could not be computed for any prewar year, one could accept the regime's official view that administrative personnel had increased by at least 50 per cent.[10] There is much evidence for attributing this increase to the highly centralized controls which the Communists introduced. This was confirmed by examining some of the other nationalized coal industries. The ratio was about the same in the Polish industry, where the administrative system is very similar. It was only half as high in the British coal industry, which operates as a semi-independent public corporation with considerable decentralization and a virtual absence of political

[7]All industrial norms are published as legal statutes and governmental decrees. The latter also identify the administrative level and functional department responsible for the supervision of a particular norm. These norm supervisors are usually called "inspectors," "accountants," economic workers," and so forth. For further details and references, see Gerhard W. Ditz, *Studies in Management Vulnerabilities: The Czechoslovak Coal Industry* (Free Europe Committee, Inc.; New York, 1957).

[8]This duplication of supervision extends to the points of production. For example, in all collieries there is the so-called dispatcher system, superimposed over the regular management organization. These dispatchers watch over the flow of work and assume command wherever there is a bottleneck. They can countermand any orders coming from regular management officials (*Uhli*, 4 [March 1954]).

[9]One official source cites an increase of 45 per cent in "nonproductive administrative personnel" for the period of the First Five-Year Plan and an increase of well over 50 per cent for the decade ending 1955 (*Rude Pravo*, May 10, 1956). According to various governmental sources total manpower in the coal industry declined by about 5 per cent in the decade ending 1954 *Statistica Rocenka* (Prague, 1954).

[10]The 12 per cent ratio was derived from sources cited in note 9. As an index of bureaucratization this is a very conservative figure. It does not include personnel in various government agencies (viz., State Mining Offices, Statistical Bureau, and State Planning Bureau), nor does it include full-time paid union officials and party officials who hold quasi-administrative positions at the collieries.

controls over operations. For the Yugoslav coal industry, which is operated on a more decentralized basis than the Czechoslovak, the figure was closer to the British.[11]

An alternative hypothesis, that the increase in bureaucratization might be due to an increase in mechanization, had to be discarded on two grounds: first, on the basis of the Czechoslovak official view that at least up to 1954 the increase in mechanically cut and loaded coal had been negligible and, second, on the basis of their admission that the increase in administrative staff had been particularly great at the higher levels and consisted largely of accounting personnel rather than engineers.[12]

The view that this industry is overbureaucratized is further confirmed by spokesmen of the Czechoslovak regime. At least since 1956 attacks on bureaucratism have become a major theme in all industrial discussions: "Bureaucratic methods stifle the inventiveness of the miners, . . . substitute paper consumption for the consumption of goods, . . . paralyze safety measures, . . . substitute endless discussion for decisive action."[13] One must not ignore the propagandist element in these attacks. The regime has an obvious interest in deflecting public criticism from the political leaders to the anonymous administrators. Even the periodic purges in which thousands of administrative workers have been transferred to productive jobs must be viewed in this light.[14] The regime is concerned not only with overbureaucratization but also with the political threat that a stabilized industrial bureaucracy might present to the political elite. This concern is clearly present in the nature of the public attacks, which reflect a virtual phobia of bureaucracy. The bureaucrat has replaced the capitalist as the whipping boy for

[11]For British industry the annual reports of the National Coal Board were used. For the administrative structure of that industry, see Ditz, *British Coal Nationalized.* The problems of decentralization and bureaucratization are analyzed in greater detail in the author's *Joint Consultation in the British Coal Industry* (University of Michigan Microfilm Publication, no. 12 [1955], 424). For the Polish coal industry figures the *Polish Statistical Yearbook* for 1955 and 1956 was used. For this and the Yugoslav industry data from the U.N. *Statistical Yearbooks* were also used. The available statistics for these different countries appeared most comparable for the year 1951, when the above-mentioned ratios were obtained.

[12]*Rude Pravo,* April 1 and Sept. 22, 1955.

[13]*Rude Pravo,* April 10, May 12, 17, 1956.

[14]Radio Prague, May 24, 1955.

all national shortcomings and failures. He is depicted as an unproductive parasite, responsible for all the deprivations and frustrations to which producers and consumers alike are subjected.

The regime has not confined itself to verbal attacks and purges. There have been periodic changes in the organization of the industry overtly aimed at administrative decentralization. None of these changes have increased substantially the autonomy of the collieries or the authority of the colliery manager. The earlier mentioned trusts have been progressively incorporated into regional *Kombinats,* which now supervise plan making and plan fulfillment for the subordinate collieries and ancillary plants.[15] There is no evidence that these *Kombinats* constitute optimum-sized units from the standpoint of administrative efficiency. Charges of bureaucratic malpractices in individual *Kombinats* have become as frequent as were those leveled against the earlier forms of administration.[16] Moreover it remains questionable whether the organizational change has meant a loosening of central controls, for the establishment of the first *Kombinat* coincided with a tightening of governmental controls. Even if this was only a temporary measure, the establishment of regional administrations has gone hand in hand with a progressive systematization of centrally determined rules which circumscribe in great detail the job of the individual colliery manager.[17]

MANAGERIAL RESPONSIBILITY AND AUTHORITY

Two contradictory emphases characterize Communist industrial management. On the one hand the manager's unqualified authority is expressed in the principle of "one-man leadership."[18] On the

[15]These changes had started in 1950 with a cabinet decree reorganizing the Ministry of Fuel. In 1951 the first *Kombinat* was established. By 1956 all bituminous trusts had been incorporated into *Kombinats (Rude Pravo,* June 26, 1956). The brown coal trusts followed a year later.

[16]For example, *Podnikova Organisace,* no. 2, 1956, *Prace,* April 29, 1956.

[17]In 1952 procedures for capital outlays were tightened (Cabinet Decree no. 28). In 1954 cost accounting was standardized throughout the industry (*Odborar,* 7, no. 9). In 1955 the comprehensive technical-industrial-financial plan was imposed on the industry (*Hornik,* Jan. 27, 1955).

[18]This principle is legally codified in all Communist countries; viz., *Czechoslovak Collection of Laws,* no. 104, sec. 20; *Polish Journal of Laws,* no. 49, item 349, and so on. These statutes reflect traditional Communist theory as expressed in Lenin's

other hand he has to share in and must even submit to the decisions of union and political committees which are composed of the workers of his plant. How are these principles reconciled in practice?

In a typical Czechoslovak colliery the manager's operational authority is delegated to various departmental heads: chief engineer, chief accountant, chief of cadres (in charge of personnel procurement, work discipline, and political security), administrative secretary, and safety officer. Although the manager often lacks technical qualifications, he is administratively and legally responsible for the fulfillment of all norms and the safety of the mine.[19]

Financial compensation does not compare unfavorably with that of the colliery manager in the West, but sanctions for failure are much more severe. A substantial part of his earnings constitute bonuses, which are contingent on fulfillment and overfulfillment of various quotas. Nonfulfillment not only means severe curtailment of income but often leads to demotion and dismissal. The manager is also subject to both civil and criminal prosecution under a system of stringent statutes.[20]

Although the manager is responsible for the various colliery targets, his proposals have only a limited influence in setting the targets, which are frequently raised within the period of the plan. Moreover, plan fulfillment may still be judged unsatisfactory if other collieries exceed their quotas. In relation to these responsibilities the manager's authority appears to be quite inadequate. In his proposals for the colliery plan he has to compete with those made by the higher management boards and those submitted by technicians and workers of his colliery. For operating expenses he is allowed only a small discretionary fund.[21] Most important, he

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dictum that "the masses must subordinate unconditionally to the dictatorial will of one man, the Soviet manager" (*Selected Works*, VII, quoted in Bendix, *op. cit.*, p. 193).

[19]For the management organization of a typical colliery, see *Introduction to Mining* (Bratislava, 1951). The absence of statutory requirements for technical training constitutes a significant break with the pre-Communist era and with Western practices.

[20]On managerial salaries, see *Uhli*, 4 (Jan. 1954). Individual prosecutions and mass dismissals of managerial personnel in the industry are published periodically, e.g., *Prace*, April 26, 1956.

[21]Operating expenses are prescribed in the colliery plan just as much as are capital outlays. Even regarding the so-called "manager's fund," cabinet decrees determined how it should be spent (Decree no. 28, 1952, and no. 27, 1953).

has to report to works councils and party committees and accept recommendations passed by them. These committees, organized throughout the colliery, cut across management lines. Acting as watchdogs for plan fulfillment, the committees can interfere with any colliery activity. The manager and his staff have to account to them for any technical and nontechnical shortcoming. Noncompliance is reported to the higher echelons of union and party organizations. The party issues periodic directives to its industrial cells on the position to be taken on current operational problems.[22]

COLLECTIVE LEADERSHIP AND MULTIPLE CONTROLS

The practices discussed above express the Communist principle of collective leadership, which both in political and industrial administration has always existed side by side with that of "one-man leadership." What Communist strategists seek is a system of multiple controls for the better execution of a unitary policy. In this system the managerial line and staff organization constitutes one set of executive controls; the union organization constitutes another; and the local party constitutes a third.

The functional division between these control groups is not mutually exclusive. Management control is principally, but not exclusively, concerned with production, engineering, and costs. It shares with the union responsibility for recruitment, industrial discipline, and political morale. The union shares responsibility with management for raising productivity, lowering costs, promoting mechanization, and other traditional management concerns.[23] More important, the control functions of the local party organization extend to all industrial activities. Even structurally the division of control is blurred because individual management and union officials can exercise additional control functions as members of the party.

How does Communist theory justify this overlapping of administrative functions? One proposition is that every industrial innovation, be it the introduction of a new machine or a new cost-

[22]The terms of reference of works councils are laid down by statute (Decree no. 17, 1953). Party committees operate under regional and national control. Industry-wide directives are often published in the party's special organ (cf. *Zivot Strany*, no. 4, 1954).

[23]Directives to their officials are published in the official organ of the miner's union, *Ceskoslovensky Hornik*.

accounting system, has both technical-economic and sociopolitical aspects. To the extent that this argument emphasizes workers' attitudes and the social variable of the work situation, it resembles the human relations point of view of modern management in the West, which developed as a corrective to the depersonalizing consequences of industrial bureaucratization. In Communist society, where these consequences are much stronger because bureaucratization is imposed from above, the party itself had to initiate and institutionalize the countermeasure. "Democratic centralism" in this context then means central bureaucratism cushioned by an officially fostered sense of "grass roots" participation. The young worker who finds himself at the bottom of a vast industrial hierarchy can and does participate in the process of managerial decision making. By initiating party-approved collective action, he can in fact impose technical changes on conservative senior engineers.[24] Here the traditional status distinction between management and workers, under which the former initiate technical changes to which the latter have to adjust, becomes blurred, if not reversed.

The meaningful advantages of this system for workers' attitudes and morale have remained highly questionable. Most reports indicate the absence of genuine mass participation.[25] On the other hand the disadvantages of this system for the managers are clearly apparent. The latter are recipients both of the customary orders from above and of suggestions and instructions from the various committees and cells which constitute the quasi-democratic government of the plant.

How can order be maintained in an industrial system where executive decisions originate in many different places and travel in different directions along parallel lines? In theory at any rate,

[24]The party organizes units of its Youth League in every colliery. Under the guidance of selected "agitators" and "activists" these units initiate experiments toward raising norms, increasing the speed of machinery, and the like. As this frequently leads to mechanical breakdowns and accidents, management technicians act as advisers to these groups (*Prace Mladych*, 9, no. 14).

[25]The miners' union organ (*Hornik*, March 2, 1955) complains that in some collieries the majority of workers refuse to join, that even among members the collection of dues has become a problem, and that union meetings are only attended by a few activists. The organ of the Communist Youth League states that as many as half of the juvenile workers refuse to join or participate in the colliery activities of the League (*Prace Mladych*, March 1955).

the answer is that these various lines are linked into a circuit by the existence of an all-pervasive party organization. The latter is said to assure that, at whatever level functional action originates, it will travel with undiminished force through the whole industrial apparatus.

Another rationale for the multilinear structure of industrial administration lies in its remedial qualities for the inherent weaknesses of a monolithic power system. The party could formally manage the industrial plants and appoint its trusted members to managerial positions. But if it did, it would have to accept sole responsibility for all industrial failures. At the same time the party would be committed to a position in the conflict of interests between management and workers, a politically unenviable position. Corresponding difficulties would arise if the party openly institutionalized its control over the unions. The Communists have appreciated the necessity of distributing responsibilities and delegating authority among formally independent organizations. In fact the multiplication of administrative controls is directly related to the degree of power concentrated monolithically. Participation in and control over one specific problem by various authorities goes contrary to sound administrative theory, but it acquires a rationality of its own in the light of the party's political strategy.

ADJUSTIVE MECHANISMS AND TOLERATED PRACTICES

Returning now to the position of the manager, one is impressed by the striking insecurity of his status. Apart from the range of economic and legal sanctions mentioned, he is frequently made a public scapegoat. When his plant's performance receives official praise, complimentary references to the manager's contributions are rarely published. This is related to the ideological tradition of the system, particularly to its utopian origin which legitimized only the role of the workers.[26] It also expresses the uneasiness of a political party which, while professedly building a workers' state, is aware of the trend toward an increasingly managerial society.

[26]Although it is very rare for the manager or management to be publicly praised, collective assignations are used which implicitly include them, e.g., "miners and administrative workers."

The insecurity of industrial management is due not only to its legal status and unfavorable public relations. The manager is held responsible for omissions and commissions of his staff and workers but has only limited claim on their loyalty. Public criticism of the manager is not only tolerated but encouraged.[27] Self-interest would induce the individual worker to show allegiance to the manager, as long as the latter is *persona grata* with the party. But there is much scope here for anticipating and promoting reversals.

All in all the position of the manager would be intolerable were it not for countervailing pressures and informal practices. While the party cannot openly identify with the managers as a class, it has a vested interest in efficient industrial administration. Political pressure on the managers is therefore matched by pressure on the productive personnel. This is expressed in frequent exhortations to local union officials to support managerial objectives.[28] Moreover, the attitudes of union officials and the attitudes they are to evoke among the rank and file must have the appearance of spontaneity. These officials' identification with managerial goals goes so far at times that they have also to be reminded of their responsibility toward the welfare of the workers.[29]

Party members too are periodically reminded that the manager has to be supported as long as he follows the directives of the plan.[30] These countervailing pressures are also applied against the higher-management boards and the officials in the ministries. The regime's campaigns against bureaucratic interference with plant management have been cited earlier. There is a consistent strategy underlying these apparently contradictory tactics. Industrial administration is conducted by competing agencies that are invested with overlapping responsibilities and act as one another's watchdogs. The consequences of such a system would amount to administrative chaos were it not for the party's power to coerce these agencies into a *modus operandi*. The resulting equilibrium is imperfect

[27]Press and radio references on this point are listed in the author's *Studies in Management Vulnerabilities*, p. 101.

[28]E.g., *Hornik*, Feb. 6, 1955.

[29]In spring of 1956 the trade union organization conducted a campaign, warning their local officials that unqualified identification with management had reached a point of diminishing returns (*Prace*, March 10, 22, April 14, 17, etc., 1956).

[30]E.g., *Zivot Strany*, no. 7, (Dec. 1954), *Funkcionar*, 9, no. 7, *Slovo Agitatora*, 2, no. 1.

and often precarious. Long-range, total planning cannot take account of changing economic and political exigencies. Resulting bottlenecks and deficiencies require policy reversals and scapegoats. Managers are particularly exposed to the latter. Their situation would be wholly untenable if it were not for the many informal protective mechanisms which have been evolved.

These informal practices cover the whole range of managerial responsibilities. Unattainable production goals are reached by reducing the quality of the product or by falsifying the records. Critical shortages of materials and tools are obviated by long-range hoarding, unofficial procurement, and informal barter arrangements. These practices have been widely observed in Communist countries.[31] They constitute quasi-institutionalized phenomena complementing the black market in consumer goods. It was found that these arrangements extended even into the area of management-labor relations, serving to protect the colliery against interference from above.[32]

The fact that these practices are so frequent and extensive and that their occurrence is officially known and up to a point tolerated suggests that this is not simply deviant behavior.[33] Rather these phenomena should be viewed as part of a large-scale informal organization which functionally complements the system of formal controls. To the managers, technicians, and workers these arrangements constitute the only available protection from constant interference. The permissive attitude of the regime acknowledges the fact that these arrangements give operational flexibility and continuity to a system which is too rigid and subject to violent upheavals. While the officially fostered work relations produce extreme competitiveness and anomie, the informal practices ensure some countervailing stability and social solidarity.

[31]Bauer, Inkeles, Kluckhohn, *op. cit.*, pp. 74 ff, Granick, *op. cit.*, p. 117, Berliner, *op. cit.*, p. 349; also Joseph S. Berliner, A Problem in Soviet Business Administration, *Administrative Science Quarterly* 1 (1956), 86–101.

[32]For example, an investigation in the Ostrava-Karvina Kombinat revealed that colliery managers falsified attendance records for their workers, invented excuses for persistent absentees, secured for them fraudulent medical certificates, and the like (*Rude Pravo*, July 16, 25, Sept. 16, 1954).

[33]The national party organ goes so far as to state, "If the colliery manager were not able to circumvent bureaucratic regulations, he could not produce coal" (*Rude Pravo*, May 12, 1956).

At the same time, of course, these informal practices are dysfunctional to the formal objectives of long-range planning. Projected goals may be reached, but only at unanticipated and unaccountable costs. Resources are diverted into channels contrary to the plan. All this creates chronic friction between planners and plant management. Errors on the part of the former tend to be covered up by the anonymous collectivity of policy decisions, but the operational consequences of these errors expose managers and workers alike to personalized economic and political sanctions.

PERFORMANCE AND PERSPECTIVES

Regime-authorized publications reveal much about actual industrial performance and problems. This is in accord with the Communist strategy of public self-criticism, which aims to detect, discuss, and propagandize existing administrative failures and weaknesses that stand in the way of maximizing industrial performance.[34] In the coal industry output has been the primary criterion of performance. Continuous regime criticism has expressed concern with the fact that up to 1955 annual production remained at least 10 per cent short of the annual plans. By that time the target had been reached, but only by substituting inferior brown coals for the more valuable bituminous coal. Even though the output of the former was raised substantially with the help of new strip mines, bituminous coal production never reached the peak of war years.[35] This resulted in a serious imbalance, as industrial demand for bituminous coal increased sharply under Communist planning. The gap was filled partly by brown coals, which resulted in higher industrial fuel costs, and partly by imposing severe hardships on domestic consumers.[36] Moreover, the country which traditionally had been a net exporter of coal turned into a net importer.

[34]Other objectives of public criticism are discussed in the author's *Essays on the Interpretation of Communist Propaganda* (Free Europe Committee, Inc., 1955).

[35]In 1943 Czechoslovakia produced 24.6 million tons of bituminous and 27.6 million tons of brown coal; the corresponding figures for 1955 are 22.6 and 40.7. *Rude Pravo* (April 13, 1954) stated that 60 per cent of all brown coal was surface mined. Radio Prague (Home Service, Jan. 10, 1956) admitted that the coal targets had only been reached by substituting inferior brown coals.

[36]*Planovane Hospodarstvi*, no. 12, Dec. 1955. Industrial demand for bituminous coal increased by 100 per cent between 1937 and 1952. Output during that period increased by only 20 per cent.

Failure to reach the planned output levels has been officially attributed to chronic manpower shortage and the inability to compensate for this by increasing mechanization. Regarding the former, in 1954 the industry had 20,000 (or one-fifth) fewer workers than during the peak war years and 28,000 fewer than during the peak of prewar years. Substantial increases in wage incentives, extensive recruitment drives, and outright conscription of labor have been nullified by an unusually high labor turnover and absenteeism.[37] Nonfulfillment of colliery mechanization plans was partly attributed to the unsuitability of imported machines (mainly from the Soviet Union) and partly to difficulties in the domestic machine and power-supply industries. These deficiencies affected productivity adversely in the coal industry.[38]

These cumulative shortcomings and the crucial need for coal explains the persistent efforts of the regime to effect administrative improvements. The basic problems, however, are similar in other industries and in the Communist orbit at large. Central controls versus local autonomy, one-man leadership versus collective authority—both constitute unresolved contradictions. This condition is exemplified in more recent developments in the Soviet Union itself.[39] The regime's proposal radically to decentralize industrial administration and to increase plant autonomy was soon followed by countervailing measures. Official warnings were issued against "narrow local interests"; nonfulfillment of deliveries would constitute a breach of state discipline."[40] Exhortations in favor of the manager's unqualified authority and against union and party interference were soon followed by instructions to these various

[37]For a more detailed analysis of manpower statistics, see Ditz, *Studies in Management Vulnerabilities*, pp. 66 ff. Annual turnover of new workers has been estimated in some areas to amount to over 100 per cent (*Rude Pravo*, Nov. 20, 1955). Absenteeism rates in many collieries range between 25 to 38 per cent (Radio Prague, July 17, 1956).

[38]*Rude Pravo*, Jan. 15, 1955, and *Prace*, May 24, 1956. Though output per man per shift has been raised slowly since 1949, in the bituminous coal industry the 1955 national average is still below that of the prewar peak in 1937 (1.28 metric tons as against 1.41).

[39]This plan was announced by N. Khrushchev to the USSR Supreme Soviet on May 7, 1957.

[40]N. Smeliyakov, USSR minister of the machine-building industry, in *Pravda*, April 3, 1957.

organizations to participate more actively in the management of industry.[41]

These contradictions result from the principle of maintaining absolute control over economic activities. Industrial leadership therefore cannot be complementary to operational responsibilities nor contingent on administrative expertise. The industrial manager has to remain subordinate to whoever represents political power both within and without the plant. Though the recent trend has been for the central government to delegate administrative authority to the regions, the status of the plant manager has remained essentially the same. In whatever way the channels of external bureaucratic control are realigned, the manager remains subservient to the holder of political power.

[41]The earlier-mentioned statement by Krushchev contained a separate section entitled: "To Increase the Role of Government, Party, Trade Union Organizations in the Economic Construction, to Draw the Masses of the Working People Still More Widely into the Management of Production."

A Bibliographical Essay on Decision Making[1]

IT has been said that administration is the critical organizational process, making possible production, procurement, and the rest; that leadership is the heart of administration; and that decision making is the key to leadership. Inherent in these statements are some remarkably accurate characterizations of current administrative theory. One thing they seem to imply is a coherence and a unity in administrative theory which do not seem to exist. When one attempts to assay the literature dealing with a concrete administrative process such as decision making, he discovers this. Divergent approaches to the study of decision making show that there are conflicting conceptions of its nature and function. And these probably are symptoms of a more fundamental conflict in contemporary administrative theory.

Administration and leadership as foci for study have traditionally been the concern of historians, occasional novelists, and students of management, public and private. A generation ago these people had articulated a consistent, rather comprehensive conception of leadership, and especially administration. The *Papers* of Gulick and Urwick, for example, were regarded by many of us as a major conceptual achievement setting forth a twentieth-century theory of organization. Even as these ideas were gaining acceptance, however, the concepts that would replace them were emerging. After World War I, even before the

[1]The authors wish to express their appreciation to Professor Paul Wasserman for access to *Decision-Making: An Annotated Bibliography*, published in 1958 by the Graduate School of Business and Public Administration, Cornell University, and to Dr. Martin Shubik for his helpful criticisms.

appearance of the *Papers,* industrial sociologists, psychologists, and cultural anthropologists had begun the study of motivation, leadership, communication, and the like. During World War II economists, mathematicians, and statisticians concerned with logistics, war planning, and management of industry-wide planning agencies found themselves analyzing decisional and managerial problems. The war also brought industrial engineers and administrative analysts into management, though they dealt primarily with the more limited, more concrete problems of production and control. In each instance squatters' rights taken fifteen or twenty years ago have been established as homesteads, with the result that the field of management is now an arena where a dozen professions, each armed with its own techniques and framework of concepts and each claiming supporters, contend for the right to set the pattern for management.

Whether this is a desirable state of affairs or not the reader can determine. It seems certain that a vast quantity of ideas, some of them impressive in their quality, have been made available to the practicing administrator. It seems equally certain that the theoretical unity and coherence once ascribed to the *Papers* has been forever destroyed, leaving a kind of conceptual wonderland full of magnificently intricate and promising devices but without any central ordering or organizing concept. It will help to deal with this variety of approaches if decision making is tentatively defined. Although Webster defines it as the settling of a controversy, the term is probably more often used in the sense of making a choice. Just what kind of a choice depends somewhat upon one's conceptual orientation.

Students of formal organization, concerned with structure, authority, and responsibility, often suggest that the choice is presented to an official as a result of some procedure built into the hierarchy which digests the many pressures playing upon it and sifts out for his attention those within his prescribed area of discretion. Frequently more concerned with the politically meaningful question of whether or not the ultimate decision reflects the public will, the scholar is inclined to use the investigation of hierarchical procedures and structural controls as tools for dealing with this question. One of the best public administration texts maintains that "decision-making represents a process where ideas, individuals, events and political considerations are analyzed to meet a problem situation."[2] This might imply that decision making is a process which has its roots far back in organizational

[2]John M. Pfiffner and Robert V. Presthus, *Public Administration* (3rd ed.; New York, 1953), pp. 50 ff.

experience and is not so much a planned activity as the indigenous and sometimes momentary expression of organizational character in response to a particular demand situation.

What will be labeled the management science approach offers a more rigid conception of the decision-making process. Where the traditionalist assumes that decision making must be at least a reasonable process, and a really logical one when possible, the management scientist, including operations researchers, statistical decision theorists, and industrial engineers, uses rationality as the keystone of his conceptions. Bross's view reflects this emphasis. "Decision-making is... the process of selecting one action from a number of alternative courses."[3] Later he states that we have seen decision making evolve from the myth-dominated devil theories of several centuries ago to the rationalistic or scientific basis of the late nineteenth century, and that statistical decision making represents the most powerful of the recent breakthroughs toward more reliable decision making.[4]

Any discussion of decision making must include reference to the conceptions of Herbert Simon of the Carnegie Institute of Technology, who places the decision within the environment of raw organization and its multiplicity of conflicting ideologies, its currents and countercurrents of motive, anxiety, stress, strivings, and satisfactions. It is clear from his classic *Administrative Behavior* that while rational decision-making processes represent the ideal, the organizational context is dominantly nonrational.[5] But one suspects that the more recent *Models of Man* indicates that he accepts the rationalistic imperative and that he is seeking the development of decision-making processes which so maximize rationality that the nonrational impact of the organizational environment is either minimized or negligible.[6]

Snyder, Bruck, and Sapin offer a most useful definition which in many ways reflects the same problems Simon deals with. "Decision-making is a process which results in the selection from a socially defined, limited number of problematical, alternative projects (objectives) of one project intended to bring about the particular future state of affairs envisaged by the decision-makers."[7] Snyder and his associates straddle the gap between the rationalistic presumption of the

[3]Irvin D. Bross, *Design for Decision* (New York, 1953), p. 1.
[4]*Ibid.*, p. 17.
[5]Herbert Simon, *Administrative Behavior* (New York, 1945).
[6]Herbert Simon, *Models of Man* (New York, 1957).
[7]Richard C. Snyder, H. W. Bruck, and Burton Sapin, *Decision-Making* (Princeton, 1954), p. 57.

management scientists and the traditionalists and a third group, the organizational behaviorists. Social scientists studying organizational behavior have adopted the presumption that while rationality is a desirable basis for choice making, given the nature of man, his organizations, and his contradictory emotions and needs, it is not realistic to assume that rationality can become the primary basis of collective choice making.

In his work on the role of the executive, Barnard offers an interpretation which many will find suitable for their own understanding and research.

> When decision is involved, there are consciously present two terms — the end to be accomplished and the means to be used. The end itself may be the result of logical processes in which the end is in turn a means to some broader or more remote end; or the immediate end, and generally the ultimate end, may not be a result of logical processes but "given," that is, unconsciously impressed, by conditions, including social conditions past and present and orders of organizations. But whenever the end has been determined, by whatever processes, the decision as to means is itself a logical process of discrimination, analysis and choice — however defective either the factual basis for choice or the reasoning related to these facts.[5]

Most behaviorists would accept this statement and then go on to maintain that administrative decision making is typically an organizational response — launched from and largely determined by collective agreement — to a demand situation. This response is seen by the participants as embodying the values by means of which the organization identifies itself, maintains its structure of roles and patterns of activity, locates its friends and its enemies, and so forth. How much of this is done rationally will vary from organization to organization, but the behaviorist would maintain that it is primarily a rational response in only a few organizations. It is "psycho-logical," but not characteristically logical.

The remainder of this discussion seeks to identify some of the major sources elaborating these two approaches to the analysis of decision making; the rationalistic on the one hand and the behaviorist or organismic on the other.

ORGANISMIC APPROACH

Where the management scientist may conceive of organization as a relatively predictable system of collective action, both the traditionalist and the behaviorist tend to see it as the confluence of several streams

[5]Chester Barnard, *Functions of the Executive* (Cambridge, 1948), p. 185.

of interrelated behavior. If their ultimate aims are similar — everyone is striving toward increased understanding of organization — what the rationalist and the behaviorist actually set down on paper is sufficiently dissimilar so that this is not always apparent. The traditionalist and the behaviorist seem to conceive of a stream of behavior first in terms of its organizational setting, describing it as an interdependent subsystem in a larger system. For example, both the administrative theorist and the management analyst take pains to identify the chain of relationships through which productive activity is tied to public sentiment or consumer demand. This view suggested the term organismic as the title for this section.

Students of formal organization included the organismic element in administrative theory from the beginning. They constructed an extensive body of management ideology that is the immediate foundation of the hierarchies of most of our companies, corporations, and government agencies, was well as the rationale underlying the rise of the professional manager. It is also the source of most of the ideas justifying our position as a leader in management expertise. Such concepts as specialization, chain of command, accountability, efficiency, responsibility, centralization-decentralization, co-ordination, integration, and the like are the kinds of ideas underlying what has been called the managerial revolution.[9]

Since World War I the monopoly of the traditionalists has been threatened, first, by the human relations movement and, following World War II, by the organizational behaviorists. Behaviorists have contributed useful new terms — co-optation, threshold of stress, group syntality; and they have substantially extended the meaning of some others — communication, authority, motivation. Without dwelling on the differences, not to mention incipient conflicts, between these two orientations, one can safely say that they represent vital alternatives to the management science approach.

The Web of Organizational Relationships

One hallmark of the organismic approach is the analysis of organizations within their environments. Most behaviorists and many tra-

[9]See, for example, Luther Gulick and Lyndall Urwick, eds., *Papers on the Science of Administration* (New York, 1937); Lyndall Urwick, *The Elements of Administration* (New York, 1944); Alvin Brow, *Organizations* (New York, 1945); Paul Holden, L. Fish, and H. Smith, *Top Management Organization and Control* (Stanford, 1941); Leonard D. White, *Public Administration* (rev. ed.; New York, 1939); James D. Mooney, *The Principles of Organization* (rev. ed.; New York, 1947); and Dwight Waldo, *Ideas and Issues in Public Administration* (New York, 1953).

ditionalists define the organization as a dynamic social organism linked through a web of institutional relationships to the groups, agencies, companies, unions, interests, and publics that constitute its environment. A dominant presupposition is that an organization and its environment are highly interdependent. This mutual dependence has several dimensions, which can be identified by discussing relevant studies.

A pioneering and still worthy conception of organizations as the cells of the larger community is presented in the two Middletown studies by Robert and Helen Lynd.[10] These studies view society as the aggregate of several institutional substructures, each with its characteristic processes and functions. The Lynds examined the economic, family, educational, religious, and recreational institutions in Middletown and then illustrated their joint functioning to meet community-wide needs. By dissecting a community into its component organs, the authors provide a perspective against which the web of relationships of any particular organization can be charted and interdependencies identified. In volume seven of the famous Yankee City study, Warner and his associates develop and apply a similar anatomical technique with considerable success.[11] Where the Lynds found that Middletown's reactions to the boom and depression could be accounted for in terms of the responses implicit in its social mechanisms, Warner and Low trace the impact of the economic revolution of the thirties upon a shoe factory as this revolution took root in the institutions and then the interinstitutional relationships of the community. In both studies it is suggested that organizations must face the future with what they have garnered from the past. And further, that the new, unanticipated demands which periodically confront an organization seldom yield to anything less than creative cross-institutional efforts. Hence the web of institutional relationships is a basis for survival. Jaques and his associates add to this perspective the psychiatrist's concern with the individual in their detailed study of a deliberate policy change in a British factory. They define with rewarding precision the critical links in the invisible chain of interdependencies which tie individual, work group, division, organization, and community into a more or less stable social system.[12]

Paralleling these studies are several more purely theoretical treatises that seek to provide broad frames of reference which represent the dynamics of various types of social systems. The most dramatic, recon-

[10] *Middletown* (New York, 1929) and *Middletown in Transition* (New York, 1937).

[11] Loyd Warner and J. O. Low, *The Social System of a Modern Factory* (New Haven, 1947).

[12] Elliot Jaques, *The Changing Culture of a Factory* (London, 1957).

dite, and controversial of these is the work of Talcott Parsons. Parsons, Bales, and Shils collaborated on the well-known *Working Papers*[13] in *The Theory of Action*. Though the five papers are not presented as more than theory fragments,[14] they must be counted among the most ambitious attempts to present systematically the subtleties and intricacies of social action.

Chapter 5 presents a scheme which assumes that individual and collective motivations are inputs which can be directed toward a number of potential objectives — or, more properly, outlets. A number of dimensions of action which can be taken as co-ordinates of a frame of reference for interpreting action are set down.

> Motivational energy entering the system [of action represented by the frame of reference] from an organism cannot simultaneously operate in all the possible processes which go to make up the system. It must be specifically *located,* in the sense that it must be allocated to one or more units of the system. . . . The dimensional scheme assumes that energy must either be "stored up" in the reservoir or it must be "expended" through transformation into gratification [satisfactions].[15]

Another widely known formal theory is that of Robert Merton.[16] His core conception is functionalism, and his development of the concepts of the function and dysfunction of various organizational behaviors, and their latent as well as manifest functions, has left its mark on much of behavioral science. The field theory of Kurt Lewin is in the same context, though it is less expansive.[17]

Where Parsons, Merton, and Lewin deal with concepts having some universality for society, Homans has constructed an intensive theory representing the dynamics of the small group.[18] His work is especially meaningful for decision making since most decisions are made in and by groups — using this term in its general sense. Homans sees the group as a different species from the organization, for it serves the immediate needs of its members and its clientele. It is prior to these larger organisms in the sense that small groups are the living cells from which organizations are constructed.[19]

Two works reflecting a more restricted attempt to represent the

[13]Glencoe, 1953.

[14]Talcott Parsons, *The Social System* (Glencoe, 1951), provides his conception of an integrated theory.

[15]*Ibid.*, p. 166.

[16]*Social Theory and Social Structure* (Glencoe, 1957).

[17]For a collection of his essays, see *Resolving Social Conflict* (New York, 1948).

[18]George Homans, *The Human Group* (New York, 1950).

[19]Functionalism is well defined by A. R. Radcliffe-Brown, On the Concept of Function in Social Science, *American Anthropologist,* 37 (Nov.–Sept. 1935), pp. 346 ff.

central dynamic of social organisms might be mentioned. In both cases the social organism is government. In point of time Herring's *Public Administration and the Public Interest* comes first.[20] Here the ideas of interdependence, alternative levels of behavior, confined or structured conflict as the norm of organizational behavior, and power are woven together in an early example of functional analysis. Implicit in this conception (as in most others with a functional orientation) is a cycle which begins with felt needs of the citizenry. In a second step these are articulated by pressure and interest groups into latent policy alternatives. In a third step legislative and administrative policy makers legitimatize these as formal governmental goals, and in succeeding steps these are refined, implemented, and translated into action aimed at meeting the original felt needs of the public. David Truman provides a more fully elaborated theory along these same general lines.[21]

This matter of interdependence is common to all of these works. It may involve supplying resources, power, technical assistance, co-operative attacks on common problems, defense against a common antagonist (or potential antagonist), and so forth. In life these interdependencies take the form of interrelationships, which exist because they are (or were) functional — and the more central the function, the higher the interdependence. Two or more formal representatives may be involved. They may work within the limits of a legal agreement (as would a purchasing agent and a sales representative); they may involve individuals who operate as informal liaison officers; or there may be a formal or indigenous "committee" which functions as a linkage mechanism.

In any case the relationships which link an organization with its environment greatly influence its character, its goals, and its opportunities; and the consistency implicit in the total configuration of the commitments embodied in these relationships largely determines the kinds of stresses it will be subject to. Thus relationships which constitute the organization's ties with its environment can reasonably be defined as the ultimate climate of decision making. We shall have to develop refined techniques for representing these if we are to account for the course of the decision-making process. At present such techniques are virtually unknown.

The most striking work on this aspect of organization is Selznick's bench-mark study of TVA.[22] Selznick suggests the term co-optation to represent the "you scratch my back and I'll scratch yours" aspect of any

[20]New York, 1936.

[21]*The Governmental Process* (New York, 1953).

[22]Philip Selznick, *TVA and the Grass Roots* (Berkeley, 1949).

relationship embodying organizational interdependence. His extensive use of the concepts of anticipated and unanticipated consequences of action leads him to discuss the constraints embodied in co-optative relationships, the commitments implicit in them, and finally the mechanisms of maintaining these commitments and enforcing them within the context of a "moving equilibrium."[23]

Almost the only other major works dealing with the organizational environment are aimed primarily at the problem of power, its sources, techniques for generating it, and the like. This thoroughly ambiguous term has a venerable position in the study of organizations. Students from Plato on have understood that power, like money, may not be among the world's most honorable goods but that it is almost impossible to get along without simply because when two men get together the requirements for the emergence of an elemental form of power have been met.

Selznick's study is a valuable source on power. It is significant because for perhaps the first time it systematically treats co-optative power. Where students of formal organization have concerned themselves with formal authority, the formal powers of government, and their control through hierarchal devices, Selznick demonstrates that these extra-formal powers are often the foundation of hierarchal power. Arthur Maass' study of administrative responsibility (and the lack of it) within the Corps of Engineers is also a valuable analysis of power. In pointing up the contradictions confronting an agency attempting to maintain a sense of responsibility to Congress, the executive, and its clientele, Maass emphasizes the role of power as one of the pivotal objectives around which organizational behavior turns.

If, as was the assumption of such pioneer administrative theorists as Gulick, Urwick, and White, organizational objectives could be formulated as a logically consistent set of goals, rationality might indeed be the fulcrum of administration.[24] But as Maass shows, the objectives of many organizations are shot through with dramatic inconsistencies. The result — though this is beyond the scope of *Muddy Waters* — is that there is an ultimate irreducible element of "might makes right" in any administrative decision-making process.

On a highly theoretical plane Lasswell and Kaplan have recognized this.[25] They have tried to provide a frame of reference that brings

[23]Cf. Parsons, Bales, and Shils, *op. cit.*, and David Easton, *The Political System* (New York, 1953), pp. 268–307.

[24]See Gulick and Urwick, *op. cit.* (especially the first paper), and Leonard White, *op. cit.*

[25]Harold Lasswell and Abraham Kaplan, *Power and Society* (New Haven, 1950).

together and rationalizes the philosophical problem of power, ethics, and reason. David Lilienthal takes account of this problem (though not with such a direct attack as Lasswell and Kaplan) in his commentary on TVA.[26] In both works the authors are concerned with the conflict between the realities of our attempts to institutionalize the manipulation of political power and the ethical imperatives of rationality and the Christian ethic.

These theoretical commentaries on the nature and control of power have a number of empirical counterparts: studies of the distribution of power in groups, communities, and organizations. The most impressive of these is Hunter's representation of the monolithic structure of power in Atlanta.[27] Where sociologists had been studying social stratification and differentiation for some time,[28] Hunter sought to lay bare the anatomy of power in one metropolis. His techniques have now been improved, and numerous similar studies have been made.[29] More important, the theoretical assumptions about community power structures have been reconsidered, and suggestive new formulations are appearing. James March's work stands out, providing operational definitions of power suitable for research and yet sophisticated enough to comprehend the ethical problem.[30] This piece is best considered along with a brilliant analysis by Herbert Simon which well serves as a beginning point for any systematic approach to power.[31] And both of these discussions will be more meaningful if one first reads Dahl's critique of the method-oriented theory of Hunter *et al.* vs. the theory-oriented constructs of scholars like Simon and Marsh.[32]

Organization — The Context of Decision Making

Organizational environment, as discussed above, may be considered as the secondary but immediate structure within which the more intimate structure of the group conditions the choice-making behaviors of the actors. In spite of the impressive theorizing about the small group now available we are still lacking conceptions which account

[26]*TVA—Democracy on the March* (New York, 1944).

[27]Floyd Hunter, *Community Power Structures* (Chapel Hill, 1953).

[28]See the discriminating bibliography by Reinhard Bendix and S. M. Lipset, eds., *Class, Status and Power* (Glencoe, 1953).

[29]See Peter H. Rossi, Community Decision Making, *Administrative Science Quarterly* 1 (March 1957), 415–444.

[30]An Introduction to the Theory and Measurement of Influence, *American Political Science Review*, 49 (June 1955), 431–451.

[31]Notes on the Observation and Measurement of Political Power, *Journal of Politics*, 15 (Nov. 1953), 500–516.

[32]Robert A. Dahl, A Critique of the Ruling Elite Model, *American Political Science Review*, 52 (June 1953), 463–470.

fully for the multitudinous and sometimes contradictory relationships between group structure and decision-making processes. Is the dynamic choice-making behavior separate from the static structure of the group? Or is decision making essentially structure in motion, in much the same way that energy is matter in another state?

Lack of agreement leads to indeterminateness on a more concrete level, but not to a vacuum. There is no question but that the configuration of shared values, the structure of roles that set the relationships between individuals in the group, the reward and penalty systems, the mechanisms of social control, the division of labor, and the technology of a group all have considerable impact upon its decision-making processes. Thus, while questions of the relationship between structure and process and function are not settled, a great deal is known about the fragmentary relationships between particular structural functions and behaviors under given conditions; these bear directly upon the decision-making process.

The research of Peter Blau brings together a great deal of what we know about organizational behavior. His *Dynamics of Bureaucracy* is a fine example of the use of Merton's functionalism as a framework for empirical research. Here the concept of function is defined "as observed consequences of social patterns that change existing conditions in the direction of socially valued objectives."[33] The underlying conceptions are developed further to include latent (unanticipated) as well as manifest functions, the mechanisms through which functional effects are brought about, and the interplay between functional and dysfunctional mechanisms of social change. One of the interesting facets of Blau's study is that he concentrated upon first- and second-level supervision instead of upon the policy makers at the top of the hierarchy.

In many ways Blau provides a precise and more extensive articulation of the landmark work of Roethlisberger and Dickson.[34] This early study provided a blueprint for future investigations.[35]

Two additional studies seeking to treat the broad dynamics of organizational behavior must be mentioned. Bakke's *Bonds of Organization* differs from the studies cited above in that it is not an empirical study.[36] Weiss's *Process of Organization,* which represents a partial exposition

[33]Chicago, 1955, pp. 6–12.

[34]Fritz J. Roethlisberger and William Dickson, *Management and the Worker* (Cambridge, 1939).

[35]Fritz J. Roethlisberger, *Management and the Worker* (Cambridge, 1950), pp. 552–568.

[36]New York, 1950.

of the important work of the Survey Research Center, is data based and is certainly the most rigorous of all of these studies.[37] Chapter headings such as "Processes of Allocation," "Processes of Adaptation and Coordination," and the "Structure of Organization" contain a novel conception of organization as a fusion of crucial behaviors.

Because it has a similar objective Bale's *Interaction Process Analysis* must be mentioned.[38] Here is a highly systematic technique for analyzing the problem-solving processes of a group. There is little doubt but that this device and its successors will become the instruments for advances toward a behavioral decision theory in the next decade. And no researcher can afford not to have scanned this work, for it provides operational categories such as "Asks opinion, Disagrees, Gives orientation, and Gives suggestion."[39]

Alongside these "group-wide" studies are those which focus on one broad dimension of groups. One such dimension is structure, either as role structure or status system. William F. Whyte's analysis of status systems in restaurants is among the most valuable in a field where there have been many studies.[40] Whyte shows how differentiation between roles is one of the foundations of group behavior; i.e., the specialized patterns of individual behavior associated with the role of cook, waitress, vegetable girl, and so on are the foundation of the division of labor within the group; the social interdependencies (an individual in one role must frequently have the co-operation of others to satisfy his own needs) between roles is a major force tending to stabilize role relationships. In any structure of roles there will be points of conflict and the means of handling these are partly a function of the status system. Particularly, the interdependencies within the status system act as dampers, controlling the limits and intensity of most role conflicts.

In one of several reports of his studies Bales points out that consensus among the members of a group on their different statuses is a function of agreement on certain critical values, related to technical aspects of production and to mutual acceptance between leaders and followers within the group.[41]

[37] Ann Arbor, 1956.

[38] Cambridge, 1951.

[39] *Ibid.*, p. 59.

[40] *Street Corner Society* (2nd ed.; Chicago, 1955), *Human Relations in the Restaurant Industry* (1st ed.; New York, 1948), and Social Structure of the Restaurant, *American Journal of Sociology*, 54 (Jan. 1949), 302–310.

[41] Robert Bales, "Role Differentiation in Small Decision-making Groups," in Talcott Parsons and Robert Bales, *Family Socialization and Interaction Process* (Glencoe, 1955).

Benne and Sheats offer a classification of roles according to function. They include productive roles, group-building roles, facilitative roles, and the like.[42] These studies are typical of literally hundreds, and the reader is referred to the survey of the literature by Bendrix above.[43]

A second fundamental dimension of the group is its value system. This also has been studied, but much less, under such labels as belief system, ideology, and structure of attitudes. Perhaps the most remarkable work in this area is Alexander Leighton's study of belief systems in an internment camp during World War II.[44] Leighton assumed that beliefs and values are at or near the core of personality. This leads him to the proposition that patterns of shared beliefs are an important basis for the formation of groups. In language that anyone can understand, artfully weaving data and conceptual framework together, Leighton presents an analysis of the dynamics of groups under stress in terms of their belief systems. He considers why one group reacts to the threat of superior authority with aggression and another with withdrawal and how belief systems serve as the reservoirs of experience and as a latent predisposition to action.

De Grazia develops a similar conception of belief systems as a basis for understanding the whole political community.[45] He sees beliefs and systems of belief not only as the framework of society, but as some of the most important manifestations of society. That is, he feels we are not dealing here with the traces on a cardiograph, but we have here a direct view of one of society's vital organs. If we can but develop techniques to chart pulsations of these verbal systems, we can develop diagnostic techniques that can correct pathological patterns before disorganization threatens the functioning of organization.

But De Grazia does not attempt to formulate stable propositions set in empirically grounded frames of reference. For another thorough study of the dynamics of belief and value systems, but one which deals primarily with perception and valuation, Bruner and Postman are suggested.[46] They hold that organizational perception can be represented as a sequence patterned around a manageable number of the total dimensions of reality, organization (relating selective perception to internal configuration of shared values), accentuation (of some percep-

[42]Kenneth Benne and Paul Sheats, Functional Roles of Group Members, *Journal of Social Issues*, 4 (Spring 1948), 41–49.

[43]Reinhard Bendix and S. M. Lipset, eds., *op. cit.*

[44]*The Governing of Men* (Princeton, 1945).

[45]Sebastian De Grazia, *The Political Community* (Chicago, 1948).

[46]Jermome Bruner and Leo Postman, "An Approach to Social Perception," in Wayne Dennis, ed., *Social Psychology* (Pittsburgh, 1951).

tions as a preparatory step toward action), and fixation (commitment to a specific interpretation of a perceived situation).[47]

The Decision-making Process

Decision making — as a sequence of behaviors — has been placed in perspective against the web of interorganizational relationships and the immediate setting of the group. There remain those works probing the nature of the process itself. Unfortunately these are extremely limited.

In a stimulating "think piece" Robert Dahl suggests that there are four broad classes of decision-making processes: the democratic (where leaders are heavily influenced by nonleaders through such devices as nomination and election), the hierarchical (where leaders are heavily influenced by the structure of the hierarchy itself), the bargaining (where leaders to some degree interdependent with each other exercise reciprocal controls over each other), and the pricing system (though this is qualitatively different from the first three).[48] His central proposition, that "leadership is somewhat specialized and not monolithic, it is bargaining not hierarchical," might well be made a part of the foundation of any future studies. It clearly is a necessary consequence of the "process" approach to the analysis of decision making in that we presume that decision is not made by one man after receiving all of the facts and alternative courses of action from staff, but by a series of persons — many of them not occupying formal positions — within the hierarchy that happens to be the locale of a particular choice-making episode.[49]

A helpful inquiry into the nature of decision making is Harold Stein's introduction in the Inter-university Case Program casebook.[50] He holds "that the decision itself is fundamentally a process rather than an act, without temporal dimensions."[51] There are no hard and fast rules for piloting the process to a satisfactory conclusion or choice. "Analysis and answer must follow two paths — tactics and values."[52] Finally he suggests that the decisional process must always be analyzed

[47] *Ibid.*, pp. 83–114. A most worth-while bibliography is provided.

[48] "Hierarchy, Democracy, and Bargaining in Politics and Economics," in Brookings Lectures, *Research Frontiers in Politics and Government* (Washington, D.C., 1955), pp. 45–69. See also Robert Dahl and Charles E. Lindblom, *Politics, Economics, and Welfare* (New York, 1953).

[49] *Ibid.*, p. 56.

[50] *Public Administration and Policy Development* (New York, 1952), pp. x–xix.

[51] *Ibid.*, p. xiii.

[52] *Ibid.*, p. xvi.

simultaneously as process (group or organizational) and as politics (the interplay of process with organizational environment).

This conception is similar to that of Barnard and Simon.[53] Barnard identifies three executive functions which in effect become processes. These are to maintain organizational communication, to secure essential individual services, and to formulate objectives.[54] But it was Simon who first attempted to formulate what social scientists call an operational statement of the decisional process. Like any attempt to approximate reality, his formulations are too complex to summarize accurately here, but they are essential to anyone seeking to understand decision making.[55]

Still, none of these works presents a fully elaborated operational theory of decision making. Snyder, Bruck, and Sapin attempted a limited formulation in 1954. Their concept of decision as "successive, overlapping definitions of the situation" is an important step toward an operational model. Reflecting Stein's process orientation, they take some pains to present a conception of communication behaviors as the anatomy of the process, including such activities as feedback, restrictive circulation of information, and interaction between communication and authority.[56]

With the exception of several works presenting guides to more effective decision making,[57] and others presenting fragments of theories or merely detailed points of view, such as Durisch's case history of TVA decisions,[58] or Gore's loose process model,[59] one is hard put to suggest other fruitful sources.

[53]Barnard, *op. cit.*, and Simon, *Administrative Behavior*.

[54]Barnard, *op. cit.*, pp. 220–247.

[55]Simon, *Administrative Behavior*, pp. 220–247. In The Role of Expectations in Business Decision-Making, *Administrative Science Quarterly*, 3 (Dec. 1958), 307–340. Cyert, Dill, and March provide an example of what Simon's Carnegie Technology operation is currently about. This application of the "expectation" concept will interest those concerned with the concrete dynamics of the process.

[56]Snyder, Bruck, and Sapin, *op. cit.;* The theoretical framework of the monograph is given added meaning in The United States Decision to Resist Aggression in Korea, *Administrative Science Quarterly*, 3 (Dec. 1958), 341–378. This analysis of Truman's Korean decision is probably the most ambitious case study yet made.

[57]Sune Carlson, *Executive Behavior* (Stockholm, 1951); Neil Chamberlain, *Management in Motion* (New Haven, 1950); Peter Drucker, *The Practice of Management* (New York, 1954), pp. 251–269; and Manley Howe Jones, *Executive Decision-Making* (Homewood, 1957).

[58]L. I. Durisch and R. E. Lowry, The Scope and Content of Administrative Decision, *Public Administration Review*, 13 (Autumn 1953), 219–226.

[59]William J. Gore, Administrative Decision-Making in Federal Field Offices, *Public Administration Review*, 16 (Autumn, 1956).

Given the absence of materials on decision making as presently defined, one fruitful possibility is to reach over into yet another discipline, experimental psychology, and seek models and concepts from studies of problem solving and thinking. A stimulating work, *A Study of Thinking,* is available.[60] Its chapters include "The Process of Concept Attainment," "Selection Strategies in Concept Attainment," and "Language and Categories." Equally important is the book's two-hundred item bibliography. Another example of the application of psychology to choice making is "Individual Decisions to Undertake Psychotherapy" in this journal.[61] That the claims of advocates of brainstorming and creative thinking are subject to some question is apparent from Taylor's empirical study, "Group Participation, Brainstorming and Creative Thinking," also in *Administrative Science Quarterly.*[62]

THE MANAGEMENT SCIENCE ORIENTATION

The most aggressive probing into decision-making techniques has come from those seeking to develop a management science.[63] While traditionalists may accept some compromise of the principle of rationality, many management scientists seek devices and procedures which will reduce both nonrationality and irrationality to negligible factors in decision making. Thus their discussions frequently center on more precise ways of describing the choices confronting management. A good deal of attention is given to the precise definition of alternatives within these choices. And more recently a great deal of attention has been directed toward the identification of the probable "outcomes" of a particular alternative. The expected consequences of each anticipated course of action having been estimated, the critical step is that of maximizing utility or disutility by weighting these outcomes within the values of the organization.

One has the impression that there are those who look toward the time when numerical values, representing estimated outcomes, may be substituted for verbal symbols in a formula representing organizational goals, which would then be solved for a decision. Lest this seem incredible, it should be noted that it was done on a lathe operator's decisions

[60]Jerome Bruner, Jacqueline Goadnov, and George Austin, *A Study in Thinking* (New York, 1956).

[61]Charles Kadushin, Individual Decisions to Undertake Psychotherapy, *Administrative Science Quarterly,* 3 (Dec. 1958), 379–411.

[62]Donald W. Taylor, Paul C. Berry, and Clifford H. Block, *ibid.* (June 1958), 23–47.

[63]Two new journals carrying the names *Management Science* and *The Journal of the Operations Research Society of America* manifest some of this vigor.

long ago by Fredrich Taylor, and his expectations are becoming a reality through the application of today's more powerful tools to a manager's problems.

If it is accidental that the term management science is almost a simple reversal of scientific management, it is not without significance, for there is a sense in which the current scientific, rationalist movement is essentially scientific management with new, vastly more powerful tools. Where Taylor used algebra, arithmetic, engineering knowledge, and common sense, we find calculus, probability statistics, and the scientific method.

But though the labels are similar and there is a continuity of purpose, it would be misleading to suggest that the current management science movement stems from scientific management. Although it has benefited immeasurably by the ready-made acceptance scientific management inadvertently prepared for it, the management science movement seems more accurately characterized as the confluence of several attempts to apply probability theory. Each attempt has had sufficient identity to acquire a different name, e.g., game theory, statistical decision theory, cybernetics, and operations research. The literature of management science can be conveniently reviewed within a description of three of these fields.

In point of time game theory might claim seniority since Von Neumann conceived the essentials of the theory in 1928. His work went largely unnoticed until the first edition of the *Theory and Practice of Games and Economic Behavior* in 1944 and the standard 1947 edition.[64] This theory suggests that major economic policy decisions can be understood by representing them as games of strategy and chance analogous to poker, bridge, or the like. "In general, a game will have a certain number of players, say n. The game is composed of moves, which are of two types: personal, made by the players, and chance, in which one of several possible outcomes is selected by a chance device." As in poker the distribution of cards between the hands is made by a random device, and the players have certain choices as to how to play their hands. The rules of the game prescribe "the conditions under which players are allowed to make their moves, and thus tend to define the character and the context of the alternative moves open to them."[65]

As a number of writers have pointed out, this amounts to translating

[64] John Von Neumann and Oskar Morganstern (2nd ed.; Princeton, 1947).

[65] Kenneth J. Arrow, "Mathematical Problems in the Social Sciences," in Daniel Lerner and Harold Lasswell, eds., *The Policy Sciences* (Stanford, 1951), pp. 140, 141.

a decision into a problem in the strategies of choice. The strategy is applied by a player against nature or competing players. This makes possible the second, and crucial, translation where the principles of probability are used to state a problem as a matter of selecting among alternatives each of whose probable expected consequences has been numerically weighted. Laplace is reputed to have explained statistics as the calculus of common sense. Most exponents of game theory echo his sentiments and add that what Von Neumann did was to provide in this analogy of the game a device for bringing reason directly to bear upon choices previously made intuitively, capriciously, or ignorantly.

The layman who would use this tool runs into an initial difficulty: the theory is most frequently presented in another language — the language of mathematical symbols. Fortunately the literature is now sufficiently extensive to include nonmathematical sources. One who is interested in only a speaking acquaintance with the theory may invest an evening in Arrow's chapter in *The Policy Sciences,* or in McDonald's piece in *Fortune,* "The Theory of Strategy," or in Snyder's discussion in *Research Frontiers in Politics.*[66] For those willing to invest several evenings three nonmathematical books are available. Although Williams' *The Compleat Strategyst, Being a Primer on the Theory of Games of Strategy*[67] has received a good deal of attention, perhaps because of its posture and relatively detailed explanation of specific techniques, Bross's shorter and more general work[68] and McDonald's *Strategy in Poker, Business and War*[69] are both excellent sources. Bross, for example, presents readily understood materials on probability, values, rules for action, sequential decisions, models, and statistical techniques. This would equip most casual readers for a further probing of the subject, and though it does not purport to serve as a systematic survey, Shubik's collection of readings is certainly one of the most useful starting points for many readers.[70]

For those with scientific, mathematical, or statistical training some of the fundamental works on the subject might represent a jumping-off point. The 1947 edition of Von Neumann and Morganstern is already a

[66]John McDonald, The Theory of Strategy, *Fortune,* 34 (June 1949), 100–110; and Richard Snyder, "Game Theory and the Analysis of Political Behavior," in Brookings Lectures, *op. cit.,* pp. 70–103.

[67]New York, 1954.

[68]Bross, *op. cit.*

[69]New York, 1950.

[70]Martin Shubik, *Readings in Game Theory and Political Behavior* (New York, 1954). See his more general discussion of decision making in this journal, 3 (Dec. 1958), 289–306, as well.

classic and is almost universally referred to by other students.[71] The two issues of the "Annals of Mathematical Studies" entitled *Contributions to the Theory of Games* must also be counted among the most important basic sources.[72] But as of this moment the most comprehensive and integrated work available is the recently published *Games and Decisions* by Luce and Raiffa. As the authors note,

> The over-all outline of this book parallels the original structuring given to the theory by Von Neumann and Morganstern...[though] in the decade since the second edition of their book there have been many additions...and we have tried to include these....Our emphasis is almost totally on the concepts and so relatively little attention is given to the detailed "solutions" of specific games. [Finally], our work is strongly colored...by a social science point of view.[73]

The book includes chapters entitled "Utility Theory," "Two-Person Zero-Sum Games," "Two-Person Co-operative Games," "Theories of *n*-Person Games in Normal Form," "Individual Decision Making under Uncertainty," "Group Decision-Making," and an appendix, "A Probabilistic Theory of Utility." It also contains a highly selective bibliography of four hundred entries. McKinsey's *Introduction to the Theory of Games*,[74] is another useful source.

The line between works on game theory and decision theory is tenuous. Several important sources nominally associated with decision theory suggest the richness and complexity of its underlying mathematical assumptions. The classic work is Abraham Wald's *Statistical Decision Functions*.[75] The work of Von Neumann and Wald is often said to form the theoretical foundations for this whole field. Also helpful are both the collected papers from a RAND seminar in Santa Monica in 1952, *Decision Processes*,[76] and a more restricted work, *Decision Making — An Experimental Approach*.[77] A more concise summary of statistical decision theory has been prepared by Savage,[78] whose work

[71]Von Neumann and Morganstern, *op. cit.*

[72]"Annals of Mathematical Studies," Nos. 24 and 28, in H. W. Kuhn and A. W. Tucker, *Contributions to the Theory of Games* (Princeton, 1950).

[73]New York, 1957.

[74]New York, 1952.

[75]New York, 1950; see also an article by Wald, Review of the Theory of Games, *Review of Economics and Statistics*, 34 (Feb. 1947), 47–52.

[76]R. M. Thrall, C. H. Coombs, and R. L. Davis, eds., *Decision Processes* (New York, 1954).

[77]Donald Davison and Patrick Suppes, *Decision Making* (Stanford, 1957).

[78]L. J. Savage, The Theory of Statistical Decision, *Journal of the American Statistical Association*, 46 (March 1951), 55–67.

on the foundations of statistics is perhaps the most readable source on decision theory.[79] Again for the mathematically inclined, there are three more comprehensive recent discussions. Vajda has a book which is most worth-while as a source on linear programming and its uses.[80] And Backwell and Girshick[81] have prepared a book which treats statistical decision theory with great mathematical sophistication.[82]

For both the layman and the administrative practitioner the literature on operations research may prove rewarding. In approaching operations research one must recognize that (a) it is a new and fluid field, (b) it is heavily reliant conceptually upon game theory and statistical decision theory, and (c) it is often as much influenced by the kind of problems undertaken in the name of operations research as by its theoretical foundations. One may also assume that (a) the field is still seeking general acceptance within industry and government; (b) that there is not a well-defined, professionally enforced pattern and approach (many problems are handled more like research projects than management studies); and (c), though hundreds of concrete applications of operations research techniques have been made, we have probably not yet discovered its full potential nor its real limitations. It is not yet clear, for example, whether a new profession of operations researchers will develop to claim a place among existing top staff functionaries or whether the tools of operations research will be applied by industrial engineers or organization and method analysts. For these reasons there is some tendency for operations research to be what people do in the name of operations research.

Yet several general works reveal considerable agreement upon its major techniques. *Introduction to Operations Research,* by Churchman, Ackoff, and Arnoff, is meant to be a basic textbook (which will yield to the efforts of most laymen). In the first two hundred pages the

[79]L. J. Savage, *The Foundation of Statistics* (New York, 1954).

[80]S. Vajda, *The Theory of Games and Linear Programming* (London, 1956).

[81]David Blackwell and M. A. Girshick, *Theory of Games and Statistical Decisions* (New York, 1954). (Wiley will publish this year an introductory work by Churnoff and Moses on statistical decision theory which will be most useful.)

[82]Included among those sources would be a discussion by the eighteenth century mathematician, David Bernoulli, whose Exposition of a New Theory of the Measurement of Risk, is translated in *Econometrica,* 22 (Jan. 1954), 23–36. This work is seen by some as the birth of the game theory. More modern and comprehensive sources would include Rudolf Carnap, *Logical Foundations of Probability* (Chicago, 1950); Hans Reichenbach, *The Theory of Probability* (Berkeley, 1949); R. E. von Mises, *Probability, Statistics, and Truth* (New York, 1939); W. Feller, *An Introduction to Probability Theory and Its Applications* (New York, 1950); and Savage, *The Foundations of Statistics.*

authors explain the strategy of operations research as "Formulating the Problem," which is to be attacked in terms susceptible to systematic analysis; "Construction of a Model," which represents the central dynamics and alternatives within the problem as defined; "Selection of Decision Criteria"; and "Solution" (in the mathematical sense) of the model. In the remaining four hundred pages four classes of models are described, including inventory, allocation or optimization, waiting time (queuing), and replacement models.[83] In a journal article Ackoff adds routine and sequencing models to this list[84] and notes that information-collecting processes may well lend themselves to mathematical models.

The importance of the model is indicated by the fact that its identification and elaboration seems to be one of two crucial steps, the other being the manipulation of values to produce a precise and internally consistent set of objectives. The model is used as a vehicle for simulating the anticipated choice situation by providing a vicarious testing of alternative subgoals and alternative means of realizing them. Since a model is an abstraction of a complex situation, one soon confronts the inevitable difficulty of determining what elements of the larger process to emphasize in the model. Such problems are presently thwarting much more widespread application of the technique. Kenneth Arrow has done much of the theoretical exploration seeking to penetrate this threshold. His chapter on mathematical models in *The Policy Science* is most useful.[85] An introductory discussion of this approach to values appears in *Readings in Game Theory*,[86] but most readers will find it worth-while to look at his *Social Choice and Individual Values*.[87]

It is no slight to operations research to note that there seems to be a place for more complex and subtle models. The inventory control problem which yields so well to existing models is important because hundreds of thousands of hospitals, department stores, army depots, auto parts houses, and other establishments must cope with it every day. But there are types of decisions, such as the selection of a suc-

[83]New York, 1957.

[84]Russell Ackoff, The Development of Operations Research as a Science, *Operations Research*, 4 (June 1956), 265–295. An alternative source is Franklin Lindsay, *New Techniques for Management Decision-Making* (New York, 1958). This discussion is especially useful in the area of concrete application of these techniques.

[85]"Mathematical Models in the Social Science," in Daniel Lerner and Harold Lasswell, eds., *The Policy Science* (Stanford, 1951).

[86]Shubik, *op. cit.*, pp. 69–72.

[87]New York, 1951.

cessor to the chief executive, which are much more vital to organizational survival though they arise much less frequently. If management science is to become the science of decision making, models which comprehend the variables in this sort of decision may be needed.

Perhaps the most popular nonmilitary application of operations research has involved inventory models. Individuals in isolated firms have been working toward systematic techniques of inventory control for a generation. These are nicely summarized by Whitin,[88] but the creation of more refined models has revolutionized this work, and the basic techniques are concisely described in an important article by Laderman, Littaur, and Weiss.[89] Central to this problem is optimizing the ratio of inventory carrying costs to the losses following an inventory shortage. Relatively simple in itself, this becomes a highly complicated matter when one seeks to take account of quantity discounts, limited funds, or production facilities. But these models of "static inventory" problems are elementary in comparison with attempts to devise models that reflect the dynamics of inventory flow problems.[90] An extensive, selective bibliography may be found in *Operations Research*.[91]

A second and more universal class of common managerial problems can be attacked with allocation or optimization models, for which the technical device is linear programming.[92] A typical optimization problem is that of minimizing the costs and maximizing the rate at which empty boxcars are moved to the points where they are to be loaded, taking account, for example, of existing traffic densities on alternative routes. This technique has been applied to hundreds of management problems; among them, optimal staffing patterns given present and anticipated personnel,[93] optimal crop rotation,[94] and optimal bombing patterns.

The relative abundance of literature on linear programming gives

[88]T. M. Whitin, *The Theory of Inventory Management* (Princeton, 1953).

[89]J. L. Laderman, S. Littaur, and Lionel Weiss, The Inventory Problem, *Journal of the American Statistical Association*, 88 (Dec. 1953), 717–732.

[90]R. Bellman, I. Glickman, and A. Gross, On the Optimal Inventory Equation, *Management Science*, 2 (Oct. 1955), 83–104.

[91]Churchman, *op. cit.*, pp. 232–234.

[92]A linear function is one where, if three gallons of fuel oil are produced for one dollar, six gallons can be produced for two dollars.

[93]D. F. Votaw and A. Orden, "The Personnel Assignment Problem," in *Symposium on Linear Inequalities and Programming*, Project SCOOP, Hdqts. Air Force (Washington, D.C., 1952).

[94]C. Hindreth and S. Reiter, in T. C. Koopmans, ed., *Activity Analysis of Production and Allocation* (Cowles Commission Monograph 13; New York, 1951).

testimony to its potential theoretical complexity and its vast potential field of application. Several reliable sources are available for those with a specific problem in mind.[95]

Queuing or waiting-line models are much more restricted devices dealing typically with service situations where the objective is to maximize service and minimize costs by optimizing waiting time and facilities. These models have been applied to the scheduling and flow problems of an airport,[96] the design and provision of capacity in automatic telephone exchanges,[97] and the flow of auto traffic at toll booths and intersections.[98] More comprehensive and detailed discussions may be found in a highly regarded discussion by Kendall.[99]

So-called replacement models are much less widely recognized than these first three, though they may soon receive a great deal of attention because they can provide such determinative and conclusive "solutions." Replacement refers to equipment or facilities, such as machinery, light globes, floors, and trucks. In the case where a light globe is simply replaced when it burns out, the problem is much simpler than when mass replacement is used and maximum average life must be determined. Where equipment is involved, there is the question of the possibility of replacement because of obsolescence in addition to the problem of wearing out. The American Management Association has prepared a summary of problems and principles.[100] Terborgh's treatment of equipment replacement policy will also be useful.[101] Perhaps

[95] *Ibid.* Among a number of other helpful sources geared to the layman, see W. W. Cooper, *An Introduction to Linear Programming* (New York, 1953); W. C. Hood and T. C. Koopmans, eds., *Studies in Econometric Method* (Cowles Commission Monograph 14; New York, 1953); Robert Dorfman, Paul Samuelson, and Robert Solow, *Linear Programming and Economic Analysis* (New York, 1958); and a series of two articles by G. B. Danzig, Linear Programming under Uncertainty, *Management Science*, 1 (April–July 1955), 197–207, and G. B. Danzig, Recent Advances in Linear Programming, *Management Science*, 2 (Jan. 1956), 131–145.

[96] R. B. Adler and S. J. Fricker, "The Flow of Scheduled Air Traffic," in *RLE Technical Report*, No. 198 (Cambridge, 1951).

[97] G. S. Berkeley, *Traffic and Trunking Principles in Automatic Telephony* (2nd rev. ed.; London, 1949).

[98] L. C. Edie, Traffic Delays at Toll Booths, *Journal of Operations Research Society of America*, 2 (May 1954), 107–138; and B. D. Green-Shields, D. Shapiro, and E. Erickson, *Traffic Performance at Urban Street Intersections* (New Haven, 1947).

[99] D. G. Kendall, Some Problems in the Theory of Queuing, *Journal of the Royal Statistical Society*, 8 (June 1951), 151–173. See also B. D. Marshall, "Queuing Theory," in J. F. McCloskey and F. N. Trefethen, eds., *Operations Research for Management* (Baltimore, 1954).

[100] American Management Association, *Tested Approaches to Capital Equipment Replacement* (Special Report No. 1; New York, 1954).

[101] B. Terborgh, *Dynamic Equipment Policy* (New York, 1949).

the most immediately useful source is the chapter "Operations Research" and the accompanying bibliography.[102]

Those unfamiliar with mathematics may have reservations about the mass of symbolism accompanying these various models. Their question is, Why put relatively simple ideas in this complex form? The management scientist seeks to explain on two different levels. In general terms he feels that techniques of mathematical thought embody a higher order of rationality than words or concepts expressed in words. Granting that the nonmathematician is a reasonable individual, his habits of thought may still be short-circuited by unperceived slips in logic — the *non sequitur*, for instance. In one sense science as a whole and mathematics in particular are elaborate rituals designed to forestall faulty reasoning.

Until recently these rituals have had only limited applicability to management decision making because of their cumbersome and oversimplified assumptions. Through the work of Von Neumann and Wald probabilistic devices have been made available so that the power of science can be brought to management. But the immediate justification for these symbols is that they make possible a previously unknown level of rigor in definition. Elements such as product, mission, organizational objective, or authority and relationships like power-over, accountability-to, or communication-with can be given precision which will support a higher level of problem solving because of the increased strength built into their base. It might be noted incidentally that while more precise terms could produce firmer agreement, less ambiguous conceptions of purpose, and much more detailed plans, they may upon occasion induce conflicts which are more intense just because the elbow room possible within more loose definitions has been reduced.

Precision has an even larger implication, however. One of the unique contributions of the manager has always been the contribution of the broad look, the view from the top. Multivariant models now under development could aid immeasurably in the manager's conception of the whole. With the development of *N*-person game theory and with the unraveling of the problem of representing nonmaterial values in mathematical terms, management science will probably revolutionize day-to-day management.

CONCLUSIONS

First, what was once an emergent, often consistent body of administrative theory has been fractured by new approaches such as human relations, operations research, and democratic management. Concur-

[102]Churchman, *op. cit.*, pp. 477–516.

rently the role of the executive in facilitating organizational unity has been diluted, with the result that organizations have become increasingly effective instruments of production and increasingly impossible places to live and work. It would seem that the former cannot continue indefinitely in defiance of the latter. There is a need for a cogent theory of organization. It is conceivable but improbable that a comprehensive decision theory can emerge in the present chaos of organizational theory.

Secondly, there is a large body of literature dealing more or less directly with some facet of decision making. (A generous list might run to five thousand entries.) The sample of one hundred items included here is a true sample to the extent that it reflects no common core, no universal dimensions. It is probably accurate also in reflecting more concern with technical problems than with fundamental organizational problems, such as role conflict and the pluralism of objectives.

While one might attempt to extract universals from this rather considerable body of literature, it is unlikely that they would receive any general acceptance. In short, the literature dealing with decision making, impressive in relation to one man's ability to deal with it, appears to be uneven and chaotic, and in no respect comprehensive. The themes which occur most frequently (centralization-decentralization, authoritarian vs. democratic leadership, control, "two-way communication," and the like) do not seem to confront many of the central problems. Conversely, critical factors such as a topology of decisions, models of various decisional processes, the function of ideology, and the basis of power and its generation receive only infrequent and inadequate attention.

Finally, though we do not now have anything approaching a theory of decision making, administrative practice remains far behind even those conceptions we do have. Most organizational systems imply an ideology half a century out of date, denying the very existence of modern social science. Thus, inadequate as the literature may be from a conceptual point of view, it contains a vast number of ideas through which organizational effectiveness could be increased simply by throwing off outworn administrative ideologies.

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Book Reviews

Administrative Theory in Education. Ed. by Andrew W. Halpin. Danville, Ill.: The Interstate Printers and Publishers, Inc., 1958. 188 pp. $3.00.

This volume, sponsored jointly by the University Council for Educational Administration and the Midwest Administrative Center, consists of eight papers presented to a conference on "the role of theory in educational administration" held at the University of Chicago in 1957. The core of the book consists of five papers which, in their different ways, are efforts to contribute to theory in educational administration. Two introductory essays emphasize the need for theory and research, criticize in general terms what has been done, and prescribe the kinds of theorizing presumably needed. A concluding paper by Roald Campbell discusses some peculiar characteristics of education that make it a special case for administrative theory.

Turning first to the contributions to theory, a paper by Carroll Shartle claims to present a "framework for the study of human behavior in organizations." So far as I can understand its prose, it appears to be a list of variables or classes of variables presumed to have some value in predicting behavior in and of organizations. The variables put forward are all quite arbitrary, unrelated to one another by any ideas except their presumed (but undemonstrated) value in predicting behavior. This is precisely the "raw empiricism" that Halpin inveighs against in his introductory essay, but it is dressed up in as pretentious a style as ever concealed a poverty of ideas.

J. K. Hemphill's paper "outlines a theory of administrative leadership in a framework of group problem-solving." The discussion proceeds in completely formal fashion: concepts are presented, distinctions made and elaborated, definitional relationships between the

concepts articulated — all without reference to anything outside the system. (The two "live" illustrations — of ping-pong players and automobile drivers — serve to clarify certain distinctions but put no particular empirical strain on the system.) Unlike Shartle's scheme, Hemphill's concepts have a certain logical relation to one another, but in the absence of any data or even of passing reference to organizational reality there is no way to guess at the model's possible usefulness. Hemphill's discussion proceeds at an almost unrelieved astronomical level of abstraction, as for example: "Differentiation is used here in conjunction with the concept of structure-in-interaction to form the concept 'differentiation of structure-in-interaction.' A 'differentiation of structure-in-interaction' exists whenever the observed structures-in-interaction are distinguished by different predictions concerning future interactions." And so forth, for pages, with nothing so vulgar as an illustration drawn from organizational life to light the way. Who could blame the educational administrator who concluded on reading this that theory is forever beyond him and best left to the experts? To my mind that would be unfortunate; I suspect that the kinds of "theory" most useful to educational administrators now and for a long while to come will be closer to the administrator's own working assessments of organizational situations than to Hemphill's formal schema.

Daniel Griffith's paper, "Administration as Decision-Making," is yet another "conceptual framework," less pretentious than Shartle's, less formal and abstract than Hemphill's, yet almost equally innocent of empirical reference. Griffith's major proposition is that "the decision-making process, as elaborated in this paper, is sufficient to describe the nature of organization." This is a hazardous claim to make for any arbitrary list of variables, and especially so when there is no evidence that the scheme has been used to describe or analyze any single organization.

The papers by Talcott Parsons and Jacob Getzels, in their very different ways, stand in marked contrast to the other three approaches to theory. They both present ways of considering organizations, but they both have something to say about real organizations, and the fact that their ideas have developed in connection with their observations of existing organizations shows itself in the strength and relevance of the ideas. Ironically, Parsons, who in his own intellectual development has shown an increasing interest in formal theory building, contributes the substantively richest paper in the entire volume. His discussion of organizations in this volume shows his concern with a formal analysis of the elements of organizations, but this formal

analysis meshes at every point with empirical observations. These many references to specific organizational patterns are introduced illustratively; by that means he clarifies the meaning of his concepts, demonstrates their usefulness for understanding and explaining (and predicting and controlling) organizational processes, and suggests strategic points where more systematic observation and research would work to test, refine, and develop his theoretical scheme. By adding to our understanding of organizational life, and by suggesting where that understanding could be further extended by research, Parsons makes an important contribution and provides a model for educational administrators concerned with the development of fruitful theoretical thinking in their field.

Getzels presents a relatively simple conceptual model which differs from the other models in this volume in that he uses it to illuminate some empirical problems. He is concerned essentially with the interplay of systems of roles with variations in personality of men playing those roles. The simplicity and clarity of his scheme, I suspect, derive from its close connection with his empirical research. Getzels is becomingly modest about his efforts, but his work at once connects with major lines of theory in social science and also is likely to be useful to administrators, both in their thinking and their practice.

Much of the discussion of theory in the two introductory papers by Halpin and James D. Thompson suffers the almost inevitable fate of such discussions which are carried on in an empirical vacuum, without reference to somebody's attempts to explain or account for something. In the first of these the editor reviews the tendencies and changes in emphasis that have taken place within educational administration over the past decade, a decade marked by a closer relationship between the applied field and the social sciences and by an increased concern in the applied field with theory. The effect of contact with social scientists, in Halpin's words, has been to make the educational administrators "abashed by the poverty of theory within our own field, [and] dismayed by the extent to which our own research has been anchored to 'naked empiricism.'" Halpin goes on to report gloomily that few studies in education have been"theory-oriented"but are largely bodies of exhortation, how-to-do-it prescriptions, catalogues of opinion, and the like. He then suggests that advances in theory building in the field have been impeded by (a) a lack of clarity about the meaning of theory, (b) confusion between taxonomies and theories, and (c) lack of clarity about the precise domain of the theory "we are seeking." But in his discussion of these matters it is quite clear to

the reviewer that if the development of "theory" is to wait on their clarification it will be a long time in coming.

Moreover, I suggest that a clarification of these matters, in fact the nature of the impediments themselves, may better come through the cumulative effort to explain things, that is, in the course of theorizing rather than prior to it. The discussion of what theory is and should be, without reference to anyone's efforts to explain anything, is a sterile business, leading as in this volume to the formulation of endless rules and definitions which are largely irrelevant to research. Halpin cites Feigl's definition of theory as "a set of assumptions from which can be derived by purely logico-mathematical procedures, a larger set of empirical laws." But what relevance has this rather narrow definition of theory for an infant discipline like educational administration, in which rather elementary ways of thinking and inquiring need to be developed? We walk before we run, and we learn to run by walking and running, not by sitting in our cribs defining the nature of running.

The fundamental error in most of these papers is the assumption that the alternative to no theory is highly abstract and formally elaborate theoretical models. But if the social sciences teach us anything in this regard, it is that the development of theory of various kinds is not simply the product of acts of will, but is the slow outcome of many efforts to describe, explain, and account for specific social phenomena. And while there is much talk in these papers of the need to study social process, there is little evidence of an awareness that the development of theory in social science is itself a social process, involving for the most part a slow development of general ideas through empirical research. And despite, or perhaps because of, the paucity of empirical research in the area, both the programmatic essays and some of the theoretical papers make unrealistic demands for kinds of theory that no body of work in the field has earned.

To sum up: What is conspicuously absent from most of these papers is any evidence of theoretically guided research in educational administration actually being done; substantive problems being defined and empirically studied; uniformities being discovered, related to one another, and accounted for; or any other form of theorizing actually going on in and through research. Getzels makes the shortest and most relevant criticism of the accompanying papers in this volume when he remarks that "there is little point in general models if they do not give rise to specific conceptual derivations and empirical applications. I think we had better stop spinning out these models unless we can show some results, however modest, either in illuminating day-to-day prac-

tices or in raising significant issues for research investigation." To which this reviewer can only add "Amen."

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Behavior of Industrial Work Groups: Prediction and Control. By Leonard R. Sayles. New York: John Wiley and Sons, 1958. 182 pp. $4.75.

This book is a research report based on a two-year study of three hundred work groups in thirty firms. The author states, "I am concerned here with portraying the whole array of informal group behavior; not only to present a realistic appraisal of human relations in industry, but also to provide some understanding why groups differ in their relations to management and the union, in their morale and productivity" (p. vii).

This is too large a promise and the research does not fulfill it. What the author does accomplish is to assemble behavioral data for what he calls interest groups and to show their relationship to the array of informal groups in the plant. The latter achievement is sufficient to mark this book as another significant advance in the growth of industrial sociology.

Most of the qualities of the work groups described relate to their participation in the grievance process. Four "ideal" work group types are identified and named — the apathetic, the strategic, the erratic, and the conservative. The author employed interview and observation techniques to discover aspects of employee day-to-day behavior which could be related to the *structure of the work group* as determined by the technology of the enterprise, independent of supervisory skills, management and union pressures, and individual personality variables.

This structural-functional approach proved fertile. The *degree of grievance activity,* whether tending toward the passive or toward the continuously active, seems to be influenced by relatively objective intergroup variables such as (1) relative position of the group on the promotional ladders of the plant, (2) similarity of jobs within the group, (3) its relative size and importance, (4) the degree to which its work is indispensable in the functioning of the plant or department, and (5) the precision with which management can measure work load and pace for the group. The quality of the pressures exerted by the internal

groups is affected to a substantial degree by the internal organization of the work unit as determined primarily by the work flow and division of labor. The technology of certain plants was observed to predispose the total worker-management relationship toward a high degree of co-operation or toward hostility. These are the closely integrated plants or job-shop type of plants. Other plants, because of inherent strength of individual occupational groups, tread a middle ground. They have less potential for noteworthy co-operation but also less inclination toward the open conflict type of pattern. Even the leadership pattern is influenced by structural features, with the dominating go-it-alone type of leader arising most frequently in apathetic and erratic groups.

A chapter on implications for management and union points out that both management and union need to calculate the influence and power of the group structure in a plant before attempting to put into effect any one of a broad range of decisions. That the formal and informal grievance process involves just as much bargaining as the negotiation of the labor agreement is especially noted. It is because of the importance of this type of bargaining that interest groups have a crucial role in the plant community.

Sayles concludes with a chapter on research and theory on groups in industry. This is a happy effort at dissecting the informal group as a modifier of the behavior visualized by the planners of the formal organization. Not one, but four important components of informal group life are identified. These are the subordinate group, the functional or task group, the friendship clique, and the interest group. The interest group is a banding together of individual workers drawn by a desire to protect the *status quo*, work standards, degree of rule enforcement and discipline meted out by supervisors, relative earnings, and seniority position, and also by their desire to improve their relative position. The research contribution of this book lies in the new knowledge which has been assembled about interest groups. The research approach is focused on employee dissatisfaction on the ground that administrators are forced to concentrate a large part of their attention and energies on problem centers.

This is a research job which may be severely criticized by the researcher who places a high value on rigorous control. It is equally open to high praise from the researcher who is interested in contributions of fruitful hypotheses for future test. This is truly an excellent exploratory and descriptive research product — "must" reading for anyone studying industrial relations and concerned with research findings that open new research pathways.

The research, as it stands, must face a barrage of critical questions. How much confidence can the reader place in the validity and reliability of the four work group types? There is no evidence that independent observers had an opportunity to classify the groups. The reader is not told how many groups were classified in each category nor very much about how the procedure was conducted. All he is told is that "as the data was accumulated and reviewed it appeared that what was being described to us was not one but a variety of work groups.... Findings cited are the product of testing a series of alternate hypotheses by inspection of the data. Work group characteristics were arrayed in large tables. The general scheme which appeared to provide a reasonably close fit has been described in this volume" (p. 178).

It should be noted that this is an *ex post facto* product, the groups not being observed in action after their typing. The stability of such groups rests upon described historic data and not data empirically observed to test a hypothesis. This is an important point since Sayles has subtitled his book, *Prediction and Control.* This is another instance of promising too much. The researcher admits that "no single work group in the study, necessarily exhibits all the characteristics of any one type" (p. 6); "that our largest source of data for the study was the description provided for us by management and union officials and because of the nature of the information requested and the minimum threat involved to the status or reputation of the informant, we believe that this was a satisfactory although highly imperfect research method" (p. 176); "there were frequently serious gaps in the data as well as suggested findings that could not be cross-checked" (p. 178); "that at this stage of our knowledge it seemed to the author, rightly or wrongly, that the present pattern analysis, suggesting the *direction* of variation, was more useful than precise quantification that could only encompass a substantially smaller range of variables" (p. 178).

These are helpful statements since they indicate that the researcher is more sophisticated in conducting his work than in assessing it. He simply cannot have the best of all research worlds. He has given us an excellent exploratory and descriptive research product. But the reader should be forewarned. This research does not make a definitive test of a single hypothesis. We are never given any tests of significance, indeed, not even frequencies of the occurrences of group characteristics. It simply cannot be claimed that the administrator can now predict and control the behavior of groups on such evidence.

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Organizations. By James G. March and Herbert A. Simon. New York: John Wiley and Sons, Inc., 1958. 262 pp.

This is a much-needed work in the field of organizational study. The book was stimulated by a desire to examine classical organization theory and to suggest alternative directions for an organizational science which would take into account and systematically organize the major social science contributions. As such it is a notable effort at systematizing theory without being eclectic. The full range of organizational theories are briefly examined for their (a) internal and logical consistency, (b) explicit and implicit assumptions, (c) empirical validation, (d) fit with other theory, (e) research testability, and (f) practical applicability.

Two types of classical theory are briefly examined: Taylor's scientific management propositions and Gulick's and Urwick's departmentalization models. The limitations of these theories are explicated as: (a) having incomplete and inaccurate motivational assumptions, (b) neglecting intraorganizational conflict, (c) ignoring human limitation in information processing, (d) giving limited attention to the role of identification in task performance, and (e) de-emphasizing program elaboration. These limitations become the basis of evaluating other theories and the principles around which more adequate theory is proposed.

Thus the bureaucratic theories of Merton, Selznick, Gouldner, and others are reviewed as concerned with human beings who are not passive instruments but actors who bring to bear their attitudes, values, and goals on organizational performance, thus eliciting nonanticipated and dysfunctional consequences. The authors suggest that these theories are incomplete since they do not systematically explore the different modes of influence over individual motivation in organizational behaviors. These must be examined in terms of two critical individual decisions; the decision to participate in the organization and the decision to produce. On the latter the authors propose studying influence on: (a) the evoking of action alternatives for the individual, (b) the consequences of evoked alternatives anticipated by the individual, and (c) the values attached to consequences by the individual. Each of these is partly under the control of the organization but partly also determined by extraorganizational factors. The internal and external factors bearing on the three sources of influence are then detailed.

The decision to participate or leave the organization is explored in terms of certain motivational constraints. With Barnard this is seen essentially as a problem of balancing inducements to the person with evaluations of his contributions. Most of the studies on labor turnover

bearing on this problem are systematically explored and evaluated as partial, since they ignore the participational decisions of other groups such as investors, suppliers, distributors, and consumers. Difficulties in measuring inducement-contribution balances are considered, and new propositions are offered which account for the individual's perception of internal and extraorganizational factors in the decision to participate.

An important variable in remaining with an organization is the ability to change the contract. With this March and Simon temporarily turn their attention away from semiconscious motivational factors and focus on conscious conflict and bargaining. Intraindividual, organizational, and interorganizational conflict are considered, and the distinguishing factors in each are explicated. The possible contribution of game theory for understanding conflict is also suggested.

Throughout the book March and Simon insist that the interrelation between motivation and cognitive factors must be a central concern for organizational theory. The cognitive limits of man as a decision maker is too often ignored or misinterpreted by both classical and revisionist (human relations) theory. Cognitive limits placed on the rational behavior of individuals call for a "definition of the situation" which is necessarily overly simplified. In complex organizations differences in such definitions have important consequences for subgroup identification, communication, and short-term planning.

Finally the book focuses on the problem of how the cognitive limits on rationality effect long-term program development. Hypotheses about procedural and substantive planning programs as carried on by individuals and groups are then briefly summarized.

This book demands serious and concentrated study by students of organizational theory. Although the work is logically developed, the concepts operationally defined, and the writing lucid, it is so tightly written that the ordinary reader will find many sections difficult. The consideration of many tersely elaborated hypotheses and variables in rapid succession pose genuine problems of intellectual ingestion. This difficulty is eased somewhat by a numbering and listing of all of the variables considered in a special index of variables. An excellent bibliography and a general index are also provided.

Organizations will appeal most to social psychologists who are concerned with the relevance of different models of man for organizational behavior. Despite occasional attempts to consider interorganizational problems in different types of social structures, the primary concern is with the motivational-cognitive problems of individuals acting within

large bureaucracies. This emphasis, along with the unnecessarily abstracted language of operations research, will make the work less attractive to practicing administrators and social scientists. Yet no one seriously interested in organizational theory should ignore the work, because it provides a virtual compendium of hypotheses worth testing and an analytic method which, if extended, is capable of providing new hypotheses. When models of organizations are as explicitly elaborated as models of man, a general theory of organizational behavior will be developed, and this is not far away.

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Participation in Union Locals. By Arnold S. Tannenbaum and Robert L. Kahn. (Survey Research Center, University of Michigan.) White Plains, N. Y.: Row, Peterson and Company, 1958. 269 pp. $5.50.

The authors aim to contribute to an understanding of formal organization and, more specifically, to the problem of union participation. Their data, based largely on questionnaires and supplemented by observation and interviews, came from four CIO locals ranging in size from 350 to 850 members; the locals are comparable in respect to size, age, location, skill levels, and ethnic characteristics but different in the level of participation. Continuing the trend which views participation as a complex phenomenon, the authors have sought social-psychological determinants and syndromes of behavior which distinguish the active union member from the inactive member, and the active union from the inactive union. To accomplish this purpose, they have stated their basic assumptions — largely a summary of the most widely accepted propositions in the area of labor union research — and relied on an excellently formulated research design, a rather wide range of hypotheses, and quantification of their data.

Along with previous writers the authors distinguish between formal and informal participation. In order to discriminate between active and inactive union members, however, they restricted their measurement of actual participation to formal activities and left the relationship between formal and informal activities to be investigated later.

Not unlike other researchers into similar problems they have developed a behavioristic rather than an attitudinal concept when they attempt to isolate the "actives" in each union. "Actives" and "inactives" are defined in relation to an index which receives its variable meaning from the relative level of participation in each union. By this standard an "active" in one union may be considered an "inactive" in another union.

The authors are careful to draw a distinction which has not always been sufficiently recognized. Democracy is viewed as a type of control structure with its own unique distribution and exercise of control, whereas participation is seen as referring to the informal and formal exercise of organizational roles. One, as the authors warn, is not necessarily related to the other.

Along these lines the authors have set up questionnaire items to measure such variables as meeting attendance, special meeting attendance, behavior at meetings, and holding office; they have tried to ascertain and compare some of the personal characteristics, aspirations, and relationships to other groups of active and inactive members, and they have been interested in arriving at a more general picture of the active union members' conceptions of organizational roles, attitudes toward the union and key union functions. The authors attempted to arrive at a motivational picture of the "actives." However, in stressing the complexity of the chain of causality which underlies union activity, they point out that participation is "two-sided"; that is, it is caused and in turn creates its own effect. The reader may thus be left wondering to what extent motivational analysis on the basis of attitudinal statements can assist in establishing a useful theoretical framework for the analysis of the dynamic picture which the authors present.

Many of the general trends which emerge from the analysis will not be entirely unfamiliar to specialists. On the other hand, the rather marked divergence between locals repeatedly draws attention to the importance of studying union characteristics as well as evaluating the meaning of the data within each union's unique organizational context.

The very careful approach of the authors has not eliminated some of the perennial problems of such studies. The broad approach permits touching upon many problems without fully exploring them. There are praiseworthy although somewhat sporadic discussions of already existing hypotheses in the field. Strict testing of them, however, is made difficult by the basic noncomparability of many of these studies as well as by the importance of the situational uniqueness or organizational climate in which empirical data were collected. Some serious questions

may be raised about the meaning that should be given to some of the questionnaire data and the purpose for which they are used; doubts of this kind are particularly serious in this type of study since many of the data are used as indices of behavior rather than as a purely attitudinal measure. As one would expect from the current state of knowledge in this area, the reader will not find a unifying body of theory but, instead, an appeal to an array of suggestive concepts and propositions. The authors are keenly aware of many of these problems; others may be said to be less a unique characteristic of this study and more the as-yet-unresolved problems of most studies of similar nature and interest.

The approach of the authors necessitated in the opinion of this reviewer a rather detailed treatment of questions for which considerable data were already available and which did not substantially contribute to any new insights. On the other hand, it resulted in a regrettably brief treatment of what may be the most promising and suggestive part of this book. Disregarding acknowledged weaknesses in the data, we find here a rather stimulating and promising discussion of the nature and consequences of different organizational control structures. Among other problems the authors discuss different types of control structures and the relationship of conformity, participation, and involvement to control structures. Another problem is the relationship between level and amount of control within an organization and the larger environment within which the organization operates, in particular, external union power. The authors attempt to describe an organizational power syndrome in which a number of variables, such as loyalty, militancy, participation, and intraorganizational conflict are studied in relation to the central variable of organizational power. The approach leads to the development of an interesting control graph as a possible way of conceptualizing and measuring the internal functioning of organizations. Within the limits of their data they characterize tentatively the active union in terms of consensus of action, command over emotional allegiance, and, among other facts, breadth as well as exercise of control. Thus there appeared to be more control, in terms of total amount, in the active union and greater pressure toward conformity. Interestingly, high control of itself did not appear to impede participation. Some of the more important factors shaping a democratic organization were found to originate outside the union, and the authors attempt to develop a mode of analyzing this widely recognized relationship of internal structure to its broader organizational environment.

While the reader may not necessarily find in the authors' new tech-

nique their most important contribution, he will find in this fresh approach some very stimulating ideas and a promising attempt to conceptualize the origin, function, and nature of different types of organizational structure.

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The Psychiatric Hospital as a Small Society. By William Caudill. Cambridge, Mass.: Harvard University Press, 1958. 406 pp. $6.50.

This is a report of a study by a cultural anthropologist of a small mental hospital connected with a medical school. Dr. Caudill had made a previous study of this same hospital through being admitted as a patient. His true status was known only to himself and the superintendent of the hospital. In making the second study, reported in this book, Dr. Caudill returned to the hospital as an acknowledged social scientist engaged in an investigation, and his role was made clear to all those with whom he came in contact. He did not find it easy to maintain his role of uninvolved investigator as the various groups in the hospital system tried to use him to help achieve their goals.

The study had three main aspects: (1) day-to-day observation of the wards and the interactions of the many different groups which comprise a hospital society, (2) an exploration of the attitudes and evaluations of these different groups of various aspects of hospital life, elicited by means of pictures depicting typical hospital situations, and (3) a study and analysis of daily staff conferences. These three studies complement one another and are bound together by a disturbance in intergroup relations which ran its course until it was resolved during the course of the study. This disturbance appears to have stemmed from a growing feeling of hopelessness on the part of various groups within the hospital, particularly the resident psychiatrists in training, of the possibility of effective communication of points of view on problems across group boundaries and withdrawal from attempting to do so. Some of the repercussions of this withdrawal on patient care and behavior are traced.

The social scientist interested in research will probably find the picture interview method and the content analysis of the staff conferences of particular interest. The psychiatrist and psychiatric administrator will find another convincing case study to add to the growing literature on the subject, demonstrating that the total social system of a

mental hospital has important and unexpected influences on the results of specific therapeutic efforts. He will also be impressed with the tremendous difficulties in shaping the social climate of the hospital in the interests of the patients' welfare. The reviewer has been acquainted with the director of this hospital for many years and knows that from the beginning he had the ideal of integrating all activities toward a therapeutic goal. But the rigid hierarchical structure of the traditional hospital, wide divergencies of point of view and understanding between different professional groups, the interference with free and complete communication by status differences, and perhaps the resistance of vested interests made his efforts long and laborious.

For the student of administration the chief interest in this book is probably the glimpse it gives of a typical organizational setup and the sort of administrative problems which result. One instance of the peculiarity of the organizational setup is that the attending psychiatrists never attended staff conferences and had practically no opportunity to learn about administrative and organizational problems, and yet the advice they gave to the residents in training about the treatment of individual patients had wide repercussions throughout the entire system.

The creation and maintenance of the social climate best calculated to promote the recovery of mentally disturbed patients is a far more subtle and difficult problem than the maintenance of adequate morale on an assembly line. It may well be that as hospital administrators wrestle with this problem with the help of social scientists their discoveries will be of value to administrators in other fields.

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Public Administration and the Public — Perspectives toward Government in a Metropolitan Community. By Morris Janowitz, Deil Wright, and William Delany. Ann Arbor, Mich.: University of Michigan, Governmental Studies, No. 36. 1958. 140 pp. $3.00.

Among the shortcomings of research now being conducted on metropolitan areas is the failure to come to grips with the crucial question of public attitudes toward government in a metropolitan setting.

Although some recent publications have explored, tentatively, the influence of social organization and activity upon metropolitan government, the impact of the economic structure, and the effects of an area's unique historical development, little consideration has been given to public attitudes toward metropolitan-based government.

Since it is focused on such a vital question, this monograph is an important contribution to the literature of metropolitan government. Approximately eight hundred people residing in the Detroit metropolitan area were interviewed and their replies interpreted and analyzed. The conclusions reached should be carefully studied by two groups in particular: political scientists who may be impatient with considerations other than the legal or narrowly political, and administrators who may be falsely optimistic and unaware of the citizens' view of them.

Public administration in a political democracy, the authors assert, should be based on consent. If democratic consent is absent, a bureaucracy is in imbalance — despotic at one end, subservient at the other. Perspectives toward the symbols of authority may be conducive to administration based on consent, or conversely on nonconsent as in the despotic or subservient bureaucracy. Four criteria were given to establish whether perspectives indicated government by consent: (1) there must be an "adequate" amount of information or knowledge about administrative processes and objectives; (2) self-interest must be served by the bureaucracy; (3) administration must be guided by principle; and (4) the civil servant must be accorded a measure of prestige. In short, if public responses to any of these criteria are essentially negative, then administration is out of balance — either despotic or subservient — and government by consent (a prerequisite to democratic administration as to political theory) is absent.

The pertinent question is whether an open-end interview of limited duration (less than two hours per person), with standardized probes, can accurately identify public perspectives toward the public bureaucracy. The use of questionnaires is accepted and widely employed, yet one is constantly tempted to be skeptical of broad conclusions or generalizations which may be drawn from some of the replies. Thus, in determining the attitude of respondents to the scope of government, the question upon which analysis was based specifically referred to government activity in unemployment, housing, and education. It is doubtful whether the low percentage of respondents (7 per cent) who believed that too much was being done in these areas is significant,

since the functions specifically referred to are relatively noncontroversial as stated and inadequately discriminating.

The authors recognize that perspectives found in 1954 might be modified had the analysis been made in the summer of 1958, when Detroit was severely affected by the recession. What they have failed to admit, I feel, is the possibility that Detroit may not be typical of the dozen or so other metropolitan areas of comparable size. One could develop and document the case that Detroit is unique and that public perspectives toward bureaucracy in other cities might be statistically different. This reservation, however, does not detract from the value of this study both as to methodology and analysis.

Briefly what are some of the conclusions drawn? The first criterion assumed that some knowledge about administrative objectives facilitated administrative balance. Without this, resistence to program objectives (caused by ignorance) might lead to "despotic administration." The survey revealed an alarmingly low level of generalized or instrumental knowledge. With some qualifications, a lower social class and a less advanced education meant less knowledge about the agencies. Even the better educated were inadequately informed. The authors thus concluded that in terms of the first criterion administration based upon consent was lacking.

The second criterion of consent is whether the public considers that its self-interest is being served by the public bureaucracy. Summary findings here indicate that the absence of tolerable level of knowledge about the public bureaucracy did not imply that self-interest was being thwarted. Only a small minority, estimated between 10 and 15 per cent, had a "crude anti-bureaucratic outlook." As already indicated, there was no consensus that the function of government was being dangerously extended. Significantly, the individual's estimate of the worth of government revealed sharper disaffections at the lower-class levels. These demanded an extension of government activities and yet simultaneously felt "that the burdens imposed by government are not worth the services rendered."

The third criterion assumed that consent exists if the public believes that the bureaucracy operates fairly and without discrimination. The revealing conclusion was that, whereas there was little general concern about corruption and dishonesty in government, a majority of those interviewed nevertheless believed that political influence was pervasive and did influence administrative decisions. The authors feel that attitudes about morality in administration are explicable through "per-

sonality and social psychological mechanisms." A person lacking political self-confidence (low estimate of his ability to influence political events) and confounded by the complexity of an impersonal bureaucracy might be expected to stress the importance of political influence. Here too the lower classes were found to be most impressed with the necessity of "political pull" in dealing with government agencies.

The fourth criterion — adequate prestige of government officials — was surprisingly satisfied. In contrast to earlier surveys which indicated that government employment was not prestigeful, this study revealed a sharp trend upward. Unfortunately, university-educated people from the middle and upper classes did not share this feeling. In general, those who favored increasing the sphere of government activity exhibited a greater respect for the civil servant than those who did not.

For Detroit (and probably most metropolitan areas) the analysis clearly indicates that public perspectives toward metropolitan-based administration are much more favorable than the press is willing to admit. The study also documents the extent to which opinions about government are in large measure derived from a person's social position. More importantly the analysis sharply discloses the extent to which administration exhibits elements of both despotic and subservient imbalance, caused in large measure by ambivalent public perspectives toward administrative authority.

Although all the observations and conclusions made in the study may not be generally applicable to other metropolitan areas, the methodology employed is both ingenious and practical. Analyzing administrative behavior from the point of view of public perspectives should permit public information programs to be more sharply focused as the goals of these efforts are more clearly revealed.

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Abstracts

Algerian Culture and Personality in Change. George De Vos and Horace Miner. *Sociometry,* 21 (Dec. 1958), 255–269. Available from Leonard S. Cottrell Jr., Russell Sage Foundation, 505 Park Avenue, New York 22, N.Y. Single copy, $2.50.

This study is based on research conducted with the specific purpose of understanding the relation between Arab culture and personality under the impact of French urban influences. The research involved a small Arab tribe in North Africa which had reached maximum economic growth, with the result that men had to go to Algiers and other big French cities to look for unskilled work. Some of these men come back because they cannot get work; others return after accumulating a certain amount of capital. Those who return to the tribe have an influence on the tribe as a whole. The study was conducted on 64 members of the tribe, including individuals who had worked in cities as well as those who had never left the environment of the oasis.

The result is an impressive amount of data concerning psychological variables in personality such as maladjustment to city life, neurotic disturbances, and severe domination of the male population over the female in the oasis as contrasted with conditions in the cities where a plethora of social and religious defenses against equality have crumbled.

Business Leadership: Diverse Origins and Variant Forms. Fritz Redlich. *Economic Development and Cultural Change,* 6 (April 1958), 177–191. Available from the University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill. No price given.

The article treats the development of business leadership along modern Western lines and proposes a number of ideas as to how the

methods employed in the West today can be introduced to underdeveloped areas of the world. In terms of the evolution of business leadership in the past, business leaders are classified into four main categories, namely, the rational, the social, the religious, and the historical type. Each type is briefly analyzed, and the characteristics and typical location of emergence of each are pointed out. The incentives guiding the various types are mentioned; the methods employed by each are discussed in terms of honesty or dishonesty, rationality or contradiction, and so forth.

The emergence of modern business methods in various Western countries is described, and the factors which played a role in their development are explained. The article concludes on the theme that the methods that were efficient in Western societies cannot be applied with equal success to underdeveloped areas because the dictates of science clash with social concepts prevalent in such parts of the world.

Decision-making Cliques in Community Power Structures: A Comparative Study of an American and an English City. Delbert C. Miller. *American Journal of Sociology*, 64 (Nov. 1958), 299–311. Available from the University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill. Single copy, $1.75.

The study is designed to test the hypothesis that key leaders in a community affect policy making by acting in unison, using cliques as instruments. Research was performed in three large cities, one in the Pacific Northwest, a second in the Atlantic Southeast, and a third in southwestern England. On a general plane, the findings disclosed evidence of group patterns but not rigid clique structures with specific clique leaders. Still, on certain issues there existed a high degree of clique solidarity. In the English city greater fluidity was observed, since there was no single elite structure and no hierarchical dominance based on one institutional sector.

The study, calling heavily upon statistical and sociometric data, was based on questionnaires and interviews. A good deal of similarity is visible among the three cities; e.g., there is a vigorous business leadership to be found in all three cities. There are friendship groupings and patterns of common social and civic participation which bring people together. There exist in all three cities a great number of top "influentials" who have prestige in the eyes of the community and are called upon for leadership services when a project is before the entire community. On the other hand the English city did not look to its business leaders so much for civic leadership as did the two American cities.

Defense against Inflation: A Study by the Research And Policy Committee of the Committee for Economic Development. 1958. 96 pp. Available from the Committee for Economic Development, 711 Fifth Ave., New York 22, N.Y. Single copy, $1.00.

Just as we are about ready to move out of a recession, we are once again faced by a danger of another kind of inflation. Measures against inflation must be taken now. It is a real shortcoming not to have an adequate program to combat inflation, the more so because our fear of it impedes our antirecession policy.

There is no simple solution. In a free society economic decisions are made by millions of people, and measures to restrict this freedom are not welcome. This paper is mainly concerned with long-run inflation, the kind that has a tendency to emerge as a way of life. It has been noticed that it usually follows a period of war, as after World War II and the Korean War. And yet the inflationary period of 1955–1957, though milder, did not follow as a result of any war. Furthermore, we had full employment, the federal budget was in balance, and the money supply was growing slowly. This is disconcerting, the committee finds, because it makes it even harder to pinpoint the causes of secular inflation.

Educating Executives: Social Science, Self-Study, or Socrates? A series of six articles: (1) One University's Role in Executive Development, by Sidney Urlick; (2) Liberal Education for Public Service? by Charles A. Nelson; (3) Understanding Self and Organization, by Nathan D. Grundstein; (4) Training Middle Management in the Field, by Harry W. Reynolds, Jr.; (5) Brookings' Executive Conference Program, by William T. McDonald and Carl F. Stover; (6) Benefits from Management Training, by Robert J. Mowitz. *Public Administration Review,* 18 (Autumn 1958), 275–306. Available from the American Society for Public Administration, 6042 Kimbark Ave., Chicago 37, Ill. Single copy, $2.00.

The first in this series of articles about study programs for executives gives a detailed description of the program followed at the University of Chicago. Emphasis seems to have been placed on the area of decision making and the different types of decision situations which confront the executive. Furthermore, attention was given not only to how decisions were made, but to what types of decisions were made, and to why one decision was preferred to another.

This idea is followed in the second article, "Liberal Education for

Public Service?" which explains why a liberal education is important for today's executive. The situations facing the administrator in our era often necessitate a broad, sophisticated outlook on decisional matters as well as on human relations problems. The development of such an executive calls for a liberal arts education that educates a man to be a man first and foremost and supplies him with a broad general outlook on various aspects of the arts and sciences. The future belongs to the generalist, not to the specialist, who too frequently has no overall command of general problems.

The third article, "Understanding Self and Organization," describes a program centering around three main themes: (1) the self as the executive, (2) the organization, and (3) the environment of the organization.

This could be deemed a professional approach to the problem, treating various components of administration from a psychological viewpoint as well as depicting the interrelationship of one with another, particularly the relationship of the organization with its ecology.

The fourth article dwells on some of the shortcomings observed in federal agencies and in on-the-spot training programs that sought to improve administrative efficiency. Some of the courses offered, their content, and their effectiveness are outlined.

The fifth article on the "Brookings' Executive Conference Program" describes a course based on a series of conferences followed by comprehensive seminars, both accentuating the job of the career executive, the problems of working in an institutional setting, management in the federal government, and the persuasive interactions between government and society.

The Goals of Economic Policy. George Stigler. *Journal of Business*, 31 (July 1958), 169–177. Available from the University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill. Single copy, $2.25.

This writing, which is in the form of a talk, contains a number of essential economic ideas. According to the author there are currently three goals of economic policy, namely, (1) maximum output of goods and services, (2) substantial growth of the economy, and (3) decreased inequality of income. In our society these three general goals have almost been fulfilled. This is not a healthy trend economically, for it could be argued that general economic goals should never be completely fulfilled. Human desires are insatiable, so that new desires are found to emerge.

It is pointed out that societies with widely divergent ideologies like the United States and Russia curiously share many similar economic goals. The important question is the methods whereby the goals are achieved. The supreme goal of the Western world used to be the development of a maximum of individual freedom and a corresponding area of individual responsibility. This view is at the moment waning, giving way to certain environmental effects of social organizations. If a truly democratic system of economic life is to be preserved, the right to individual decision, whether wise or stupid for the individual in question, ought to be encouraged. What is needed, the author maintains, is more individualism, more competition in contrast with the pseudo-protection of joint organizations, and a more equitable mode of taxation.

Interviewing a Legal Elite: The Wall Street Lawyer. Erwin O. Smigel. *American Journal of Sociology*, 64 (Sept. 1958), 159–165. Available from the University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill. Single copy, $1.75.

Interviewing an elite, be it a legal elite or the elite of any other profession, has its special problems. In interviews with Wall Street lawyers four specific challenges had to be dealt with: (1) the lawyers' own skill as interviewers, (2) their specialized functions, (3) the value of their time, and (4) their reluctance to be interviewed.

The writer points to the high qualifications of every lawyer employed in those firms by mentioning that they retain only graduates of high standing from the top three law schools in the country. Thus partners as well as associates are very competent. He then shows why the four challenges listed are present and goes on to suggest a few means to overcome them and to secure a productive, successful interview. The lawyers' own familiarity with the art of interviewing and their tendency to dominate the interview with their own questions are mentioned as things to cope with, apart from the fact that a good many questions run against a roadblock of professional ethics and a fear of jeopardizing the interests of other partners by things that might be said and made public.

The Job of the Federal Executive. Marver H. Bernstein. Washington, D.C., 1958. 241 pp. Available from the Brookings Institution, 722 Jackson Place, N.W., Washington 6, D.C. Single copy, $3.50.

It is generally believed by students of government that the job of the

higher federal executive is complex, responsible, and strenuous. This book underscores the truth of this belief while emphasizing the relationships between various public agencies and the federal executive's relations with various social groups on the one hand and the agencies of his own department on the other.

The work is the result of round table discussions held at the Brookings Institution early in 1957. On the invitation of the Institution a group of federal executives and a number of other persons met for a series of evening meetings covering such topics as (1) the nature of the executive's role and his job, (2) the differences in the functions of political and career executives, (3) the special characteristics of the environment in which the federal executive operates, and (4) the problem of obtaining and developing effective federal executives.

A comparison is made between business and federal executives, and it is pointed out that business executives know much more readily, and without complications, where to go for a certain aspect of pertinent information. It is also noted that business executives in government suffer from a lack of understanding of the complex interrelationships and "public" character of the federal government's activities.

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